APR

VOLUME 23 NUMBER 4

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PUBLISHED MONTHLY BY THE AMERICAN MEDICAL ASSOCIATION, 535 NORTH DEARBORN STREET, CHICAGO, ILLINOIS. ...

Entered as Second-Class Matter, October 30, 1917, at the Postoffice at Chicago, ... under the Act of Congress of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized ...

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[illegible] Society.

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Archives of Dermatology and Syphilology

VOLUME 23 APRIL, 1931 NUMBER 4

PHYTOPHARMACOLOGY OF PEMPHIGUS AND OTHER DERMATOSES

ADDITIONAL STUDIES *

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AND
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In our first communication,[1] it was stated that the discovery of a characteristic toxicity for plant growth in the blood of patients with pemphigus was an accidental observation in connection with the examination of 250 specimens of various dermatoses. This discovery induced us to pay special attention to pemphigus, particularly because this toxicity apparently held for all the forms of pemphigus which we examined. It included an occasional case of the Senear-Usher type as well as a number of instances of so-called pemphigus of the eye, both those associated with, and those free from, lesions demonstrated elsewhere on the body. The present report is concerned with the subject of pemphigus alone, with the exception of certain other conditions to which reference will be made. The test was applied to 60 additional cases. It is our purpose to make critical comments on the readings, to call attention to some elements of interest in the method, to stress certain shortcomings and to speculate briefly on our results.

In reviewing the literature on pemphigus for the past three years with regard to the toxic theory of etiology, we have found no experimental evidence to support this aspect other than some inferences to which no reference will be made.[2]

* Submitted for publication, July 22, 1930.

* From the Department of Dermatology, Johns Hopkins Hospital and Medical School, and Research Laboratory of Pharmacology, Hynson, Westcott & Dunning.

* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Pels, I. R., and Macht, D. I.: Phytopharmacologic Examination of the Blood in Pemphigus and in Some Other Diseases of the Skin, Arch. Dermat. & Syph. **19**:640 (April) 1929.

2. Those interested may consult the following publications: Engelhardt, W.: Krankheitsforschung, Zentralbl. f. Haut- u. Geschlechtskr. **28**:275, 1928-1929. Prochazka, K.: Zentralbl. f. Haut- u. Geschlechtskr. **29**:65, 1929. Lanford, J. A.: South. M. J. **21**:35, 1928. Voigt, L.: München. med. Wchnschr. **75**:287, 1928. Zuskor, P.: Zentralbl. f. Haut- u. Geschlechtskr. **32**:13 and 798, 1930.

Possible toxicity in some patients subjected to the test was mentioned in our first report. Thus, syphilis (with treatment with arsphenamine), eclampsia,[3] pellagra (with some exceptions not checked for special medication), active pulmonary tuberculosis,[4] and other conditions, have shown no toxicity. In a number of examinations serums from lepers were found to be very toxic.[5] The entire question of complications resulting from the administration of drugs by various methods has so far not been adequately or completely studied.

It may be of interest to mention that tests of the contents of bullae in a few cases of pemphigus gave evidence of toxicity, but in the main these percentages were higher than that of the blood serum in the same patient. Our cases were too few to be considered conclusive. It occurred to us to endeavor to obtain a greater number of specimens of the contents of skin bullae in dermatoses. We abandoned the idea of testing the contents of the lymph stream, a procedure certainly worth trying, as we know of no work in this field except that on the lower animals. Obviously, our failure to follow this procedure was due to the difficulty in procuring lymph from human beings because of the necessity for general anesthesia and the intricate technic required for tapping the large lymph vessels. Perhaps this difficulty will be overcome in the future.

Nevertheless, we did not abandon the idea of procuring serum or lymph, or both, in bullae which could be produced through artificial methods. We concluded, after preliminary trials, that the application of solid carbon dioxide snow on the arm or on the thigh would give a resultant bulla after a period of from twenty-four to forty-eight hours, with sufficient fluid content for the phytopharmacologic test. The disadvantages of the method are obviously that some pain and discomfort arise immediately and are followed by protracted healing with or without moderate ulceration or scarring, and also that the bullae may be ruptured through ordinary trauma if not properly protected with soft gauze bandages. This technic [6] has the advantage, however, of being uniform

3. Macht, D. I., and Losee, J. R.: Bull. Johns Hopkins Hosp. **46**:217, 1930.

4. Macht, D. I.: Proc. Soc. Exper. Biol. & Med. **27**:150, 1929.

5. Macht, D. I.: Science **71**:302, 1930.

6. The flexor surface of the forearm or the inner side of the thigh is first cleansed with alcohol (50 per cent), dried and then treated by the application of a block of solid carbon dioxide with moderately firm pressure for a period of from thirty to forty seconds. The area is immediately covered with sterile gauze of several layers' thickness and about 4 or 5 cm. square. The patient is instructed to avoid possible trauma and to report in from twenty-four to forty-eight hours. The contents of the bullae are then taken in a 2 cc. syringe, previously boiled in plain water, and preserved in a small, clean, dry tube of about the same capacity. This is closed with a clean rubber stopper to avoid loss of fluid and is practicable for any necessary transportation.

and of always producing the blister under the same conditions, eliminating especially the possibility of chemical pollution or change, such as one might expect if, for example, a cantharides or mustard plaster were employed to produce vesiculation, either of which may be toxic for plant protoplasm.[7]

We first tested normal skins on ourselves (I. R. P.) and on volunteers, including in the test bullae produced on normal skin and those produced over actual lesions. In the main we found that the readings were higher, less toxic, than readings on normal blood, and, when this was found, frequently corresponded in toxicity to the readings of toxic serum. The significance of this observation is obviously not great; it is reported merely as a check on the blood. The method of obtaining fluid from the skin was sufficiently interesting, however, to stimulate us to further investigation. The contents of such fluids have not yet been analyzed by chemical, bacteriologic, pharmacologic or other scientific methods. We hope, however, to make a report of this feature at some future time.

PHYTOPHARMACOLOGY

The method devised by one of us (D. I. M.) of detecting the toxin of pernicious anemia has been described elsewhere. It consists, briefly, in measuring quantitatively the increment in the length of the straight, single, well defined roots of seedlings of the hardy and especially useful plant, *Lupinus albus*. The average length of ten or more such seedlings is measured, and the seedlings are then immersed in a suitable plant physiologic nutrient solution and allowed to grow for twenty-four hours, after which they are again measured and the average increment determined. This is the standard of comparison for other series of seedlings tested in unknown solutions at the same time and under the same condition. A similar series of seedlings, immersed in exactly the same kind of nutrient solution with 1 per cent of normal human blood serum, gave an increment of growth of from 70 to 75 per cent as compared with the original standard mentioned. A third series of seedlings grown simultaneously in the nutrient solution, containing 1 per cent of pemphigus serum, revealed marked inhibition in the growth of plants, the relative figure or index of growth, as compared with the original normal standard, being usually below 60 per cent.

As the detection of the toxin in the serum and its quantitative estimation by phytopharmacologic methods is essential to a rational study and evaluation of various methods of treatment, it may be well to emphasize some important details in connection with the test. We wish to emphasize at once that in order to carry out the phytopharmacologic test carefully, a great deal of training is required not only in ordinary pharmacologic methods, but also in the laboratory methods pertaining to

7. Macht, D. I.: Proc. Soc. Exper. Biol. & Med. **25**:593, 1928.

plant physiology. If a beginner expects to succeed in such work on the first attempt, he will more than likely be disappointed; indeed, he may not be able even to germinate the seeds, much less to secure uniform seedlings suitable for testing.

The seeds employed by one of us (D. I. M.) and his co-workers were those of a large variety of *Lupinus albus*. These seeds must not be too old or worm-eaten. They should be soaked in tap water for twenty-four hours to insure their complete swelling and then planted in a suitable germinating medium. The most suitable germinating medium for this purpose is finely ground sphagnum moss. It is of vital importance that after such moss has been ground to a very fine powder, it should contain a sufficient amount of moisture for the germination of the particular seed. This is one of the first stumbling blocks that the beginner may encounter. If too much moisture is present in the moss, the seeds will rot and grow fungi. If too little water is contained in the moss, the seedlings will give a stunted growth and will suffer from malnutrition. Experiments made to determine the water content in sphagnum moss most suitable for germination showed that such moss must contain about 75 or 80 per cent of its weight in water. In preparing sphagnum moss for germination, fresh moss must usually be rinsed with hot water a number of times in order to dissolve and remove acid matter which may interfere with the proper growth of the plants. After planting the swollen seeds in a properly prepared sphagnum medium, the vessel containing it should be placed in the dark at room temperature and germination allowed to go on. When the seedlings attain a length of from 20 to 30 mm. or more, depending on the temperature and other conditions, they are ready for testing. Several rows of hard glass test tubes should be set up perpendicularly, each row consisting usually of ten tubes. In the first row, ten seedlings are immersed in the normal nutrient solution consisting of equal parts of distilled water and Shive solution, described elsewhere. In the succeeding rows a similar nutrient solution should be employed with 1 per cent of blood serum to be examined. The seedlings are carefully measured with a millimeter rule and immersed in the solutions that have been thus prepared. The whole outfit should then be placed in an incubator or other suitable place in the dark. It is essential that the growth of the seedlings be carried on at a proper temperature, from 20 to 22 C. being the most suitable. When kept at a higher temperature, growth may be so greatly stimulated as to mask small differences between the various sets of seedlings. A similar effect may be produced during warm seasons. It is a well known biologic fact that, aside from the effects of temperature, biologic processes are generally more vigorous and more active in the spring and early summer. It is therefore especially important at such times of the year to carry on the phytopharmacologic tests at temperatures of from 18 to 20 C., and not higher, because the rapid growth of the plants may otherwise mask the influence of factors of inhibition. After the seedlings have been allowed to grow in the solution for twenty-four hours, they are measured again, and the phytotoxic indexes are determined. In order to insure accurate results, it is necessary to select seedlings of the same variety and species and of nearly the same length. It must also again be emphasized that the growth of the seedlings must take place in the dark; in other words, the plants must be etiolated.

The importance of growing test seedlings in solutions at temperatures of from 18 to 20 C. is more essential for the study of pemphigus than for that of other toxins, as, for instance, the toxin of pernicious anemia, because it was found that when pemphigus serum, dissolved in

the nutrient solution mentioned, is allowed to remain at room temperature, it gradually undergoes decomposition. The same is true of undiluted pemphigus serum.

A clinician unfamiliar with the difficulties of laboratory technic would perhaps be inclined to regard points in the method just described as open to criticism. It may be stressed in this place, however, that all criticism raised in this connection is of a general character applicable to all biologic experimentation. It is certain, moreover, that the data yielded by the phytopharmacologic method are just as reliable as those obtained from zoopharmacologic experiments even in the hands of an expert, and, indeed, more reliable, because in all the plant work we carried out an average reading on at least eight seedlings, and sometimes final readings were taken on ten or more seedlings; in all doubtful cases the readings on eight or ten seedlings were repeated once and, if necessary, several times. We cannot emphasize too strongly the necessity of following a uniform technic throughout the experiment, beginning with the handling and planting of the seeds, the germination of the seedlings, the preparation of the blood specimens and the making of the measurements. In order to eliminate the slight deviations that may be due to variations in personal equation, all of the experiments carried out in the present investigation were done by one of us (D. I. M.) in person or, at least, under his direct supervision. It must also be borne in mind that certain discrepancies that have occurred occasionally in connection with the examination of blood specimens sent to us may be directly attributed to faulty technic or negligence in the obtaining of the samples. Thus, for instance, iodine and other chemicals used in the cleansing of the skin, unclean needles, unclean glassware, and the like, may be responsible for the presence of small amounts of impurities which appreciably affect the readings of the measurements. Occasionally we have received specimens of blood apparently hemolyzed through insufficiently dried glassware. In other cases, physicians who have sent samples for examination have not infrequently disregarded our directions and added chemicals to the blood such as oxylate or nitrate, both of which are poisonous for plant protoplasm. It must also be borne in mind that transportation of specimens over long distances, especially in the summer, is conducive to the acceleration of putrefactive changes in the blood which may interfere with the test. The question of impending death in relation to the toxicity of the serum is an important one concerning which it is not possible at the present time to give a definite opinion because we have received specimens from such cases only on rare occasions. An additional shortcoming, which may be the subject of fair criticism in connection with our investigation, arises from the fact that we have been unable to follow up all of our cases. We have taken the diagnosis of pemphigus as submitted by

TABLE 1.—*Results of Examination of Blood Specimens*

Specimen	Phytotoxic Index, per Cent	Comment
255	30.0	Repeat specimen
260	68.6 (average of 5)	Began as erythema multiforme, eventually pemphigus; death; autopsy
261	64.0 (average of 2)	Pemphigus chronicus; death
262	64.0	Pemphigus
263	55.0	Pemphigus
264	60.0	Pemphigus
265	64.0 (average of 2)	Pemphigus of eyes, mouth and body
266	40.0	Male; chronic pemphigus many years; a few lesions
269	53.0	Male
270	37.0	Female
271	64.0	Male; pemphigus; involvement of mucous membrane
273	67.0	Male; pemphigus
282	60.0	Male; lesions of mouth for one year; lesions of body for three months
293	75.0	Male; pemphigus; cured (?)
294	53.0 (average of 2)	Male; pemphigus; well
295	70.0	Female
296	63.5 (average of 2)	Male; no lesions
297	70.0	Male; cured (?)
305	62.0	Male
313	68.0	Male
329	51.5 (average of 2)	Male; pemphigus; tryparsamide; death
332	64.0	Male; pemphigus; death
333	40.0	Male
336	60.0	Male
342	61.0	Female; third week Davis treatment; lesions on mouth, axilla, breast and scalp
344	48.0	Female
345	60.0	Female; pemphigus
355	66.0	Female; pemphigus (?)
367	74.0	Male; pemphigus vulgaris; death
369	55.0 (average of 2)	Male; acute pemphigus (?); body, extremities and mouth free; death
372	63.8 (average of 5)	Male; pemphigus; larynx (?), arms, body; trichiasis
374	70.0 (average of 2)	Female; pemphigus (?); lesions on mouth, body, etc.; diabetes; death
375	59.0	Male
376	59.0	Female; four months' duration; mouth involved
377	55.0	Male; pemphigus (?)
379	67.0	Male; acute pemphigus; nephritis; death in 24 hours
387	75.0 (average of 2)	Male; pemphigus; specimens taken during remission and before death
410	61.0	Pemphigus
411	63.0	Pemphigus
413	62.5 (average of 4)	Female; benign pemphigus (?)
421	61.0 (average of 3)	Female; pemphigus, Senear-Usher type, 18 months; lupus erythematosus on face; bullous lesions on body; therapy with a gold compound
423	57.5 (average of 2)	Female
424	68.0	Female; chronic benign pemphigus
425	74.0	Female; chronic benign pemphigus
432	48.0	Male; "pemphigus vegetans"
443	55.0	Female; possibly pemphigus
447	62.0	Male; pemphigus (?); three to four months' duration; mouth involved
457	57.0	Pemphigus (?) of the eye
458	58.0	Male
459	55.0	Male, aged seven years; "clinical pemphigus"
466	64.0	Female; pemphigus; lesions of mouth; recently on chest; lost 20 pounds (9 Kg.)
470	66.0	Male, aged 80 years
493	60.0	Male; pemphigus vulgaris
502	63.0	Female; clinical pemphigus
506	59.0	Male; features of both pemphigus and dermatitis herpetiformis
512	58.0	Female; pemphigus
513	52.0	Male; pemphigus
514	65.0	Male; pemphigus
515	44.0	Pemphigus
520	50.0	Male; death in twelve months

Average of sixty cases, 59.6 per cent

Average of fifty-three cases (excluding normal readings), 57.9 per cent

clinicians sending the specimens, and have recorded the readings as such. Even though some of these probably were cases of dermatitis herpetiformis or erythema multiforme, both of which may resemble pemphigus, the phytopharmacologic test may become of special value in the differentiation.

TABLE 2.—*Erythema Multiforme of Mouth*

Specimen	Date	Description	Phytotoxic Index
235	.....	.....	62
243	4/16/28	Lesions of the mouth.....	62
287	10/10/28	Recurrence in one week.....	60
290	10/29/28	Mouth clearing	67
300	11/26/28	Lesions disappeared	64
311	1/ 4/29	Crusted lesions on chin.....	60
327	3/ 1/29	No lesions	67
340	5/ 6/29	Sore on upper lip (herpes simplex).....	75
356	6/24/29	Crusts on lips.....	70
362	7/24/29	Herpes simplex two days.....	60
388	10/28/29	Soreness of mouth; no lesions seen.....	55
405	12/ 9/29	Two to three crusts on lips, body and feet.....	71
427	1/10/30	No lesions	60
430	1/22/30	Herpes simplex of lower lip.....	62
460	3/12/30	Vesicles on lips and in mouth; slight adenopathy..	64
478	4/14/30	No lesions for four weeks.....	66
492	5/12/30	Lesions on lips, buccal surfaces, arms and legs....	60
17 readings, average.....			63.8

TABLE 3.—*Erythema Multiforme*

Case	Phytotoxic Index, per Cent	Comment
257	62	Recurrent on hands, lower arms; occasional bullae
259	75	Three to four attacks in a year; once bullous
267	40	Recurrent; Vincent's disease of mouth ?
268	78	Well for two weeks
272	75	Two blood transfusions
277	75	Bullous; mouth involved
283	75	Extensive; bullous
285	75	Extensive; bullous
292	75	A few lesions; mouth clear
331	75	First attack; bullous
337	74	
349	75	
346	60	Third attack
422	80	Bullous
428	70	Bullous; herpes iris
434	60	Bullous ?
451	50	
454	66	
467	64	Extensive; bullous
481	75	Bullous
491	70	Bullous
494	72	Bullous
Average of 22 cases, 70.5		

EXPERIMENTAL DATA

The results obtained from the examination of the various specimens of blood are exhibited in tables 1, 2 and 3. Table 1 exhibits the results of sixty cases of clinically suspected pemphigus. Table 2 shows the results of repeated examinations of a borderline case, to be discussed, and table 3 gives the operations in twenty-two cases of erythema multiforme. It will be seen from table 1 that the average for the sixty cases

was 59.6 per cent. Seven of these, or 8.5 per cent of the total number, gave an average of 72.5 per cent. If these are not reckoned, there is an average of 57.9 per cent. This compares well with the average reading of 53.8 per cent published in our previous paper. The average of the seventy-eight cases on the entire series so far examined is 58.3 per cent.

COMMENT

We noted a few readings that were at variance with the facts of the clinical diagnosis. A number of these occurred in women. Thus, we were first led to suspect menstruation as a complication, and further investigation substantiated this suspicion. However, in some cases of erythema multiforme, quoting the diagnosis of the colleagues who furnished the specimens, we obtained readings that were termed toxic in the grade. As stated in our original communication, this brought up the question of whether some clinical cases of erythema multiforme might not actually be a certain type of pemphigus. The majority of our cases of typical erythema multiforme, occurring at seasonal changes, manifesting lesions on the arms and hands which disappeared in a week or ten days with subsequent recurrence, gave normal readings (table 2). In view of this fact, the question raised by such abnormal conditions of potential pemphigus in a benign form cannot be entirely dismissed. In this connection, note our record of case 235 (table 3), that of an Italian boy, aged 15, who had sudden attacks of bullae and erosions of the lips and buccal mucosae, without constitutional symptoms, which disappeared in about ten days and recurred without periodic or seasonal influences. All of the readings with the exception of three (averaging 72 per cent) were consistently toxic, varying from 55 to 67 per cent, with an average of 63.8 per cent. It is possible, in view of case 235, that some of these types of erythema multiforme may eventually become pemphigus, are potentially pemphigus or, at least, have a persistent toxicity of the blood for plant growth. This is borne out by case 260 (that of a patient who showed clinical erythema multiforme of the mouth at first, and who finally died of clinical pemphigus). Contrariwise, we would call attention to case 387, that of a patient with a condition diagnosed clinically as pemphigus, who subsequently died, in whom we found none but normal values.

In one of our own cases (374), an elderly, diabetic woman presented a suggestive clinical picture of pemphigus, having lesions in the mouth and on the body, vulva, extremities, etc. She improved for several months, had a relapse with aggravation of symptoms and finally died. Specimens of blood in both attacks were normal. We were thus reminded of the fatal case reported by Pollitzer,[8] and naturally wondered

8. Pollitzer, S.: Arch. f. Dermat. u. Syph. **29**:209, 1911.

whether the cases with bullous manifestations constitute a clinical entity resembling pemphigus, even with symptoms of a profound toxemia, or whether there may be a condition existent in them suggestive of anergy.

These unexpected normal conditions may be due to a lack of toxicity in the blood, to a failure of the test objects to respond to the toxin or, what is most likely, to a decomposition or disappearance of the toxic substance because of uncontrollable or unexplainable causes.[9]

Our results in erythema multiforme were more interesting than those in dermatitis herpetiformis. Since the diagnosis between pemphigus and the latter offers a great difficulty, our readings, when toxic, could be evaluated only by following up the cases—obviously a difficult matter in most instances. Thus far we have no data to offer, but can state only that repeated tests in a few cases, in which the "follow-up" was satisfactory, served to distinguish the two diseases. Therefore, we may presume from these few examples that dermatitis herpetiformis does not give a toxic reading.

It is interesting to note that irradiation with ultraviolet light (water-cooled lamp) of pemphigus serum, contained in quartz test tubes, caused no detoxification. This result differs from that obtained with the serum of pernicious anemia, in which case a marked detoxification was noted by one of us (D. I. M.) and Anderson.[10]

SUMMARY AND CONCLUSIONS

In this second report of the examination of blood serum from approximately sixty additional cases of pemphigus, we have been able to confirm our preliminary readings, namely, a greater toxicity for plant protoplasm as compared with that of normal serums. This toxicity, however, is not uniform in about 9 per cent of the cases, less than one in ten.

Whether clinical factors or errors in diagnosis influence the variation is still a matter of speculation.

A more or less comprehensive criticism of the method, with discussion of probable errors, is also submitted.

The method apparently serves to differentiate pemphigus from typical dermatitis herpetiformis.

The relationship of erythema multiforme, including the bullous type, to pemphigus is discussed. The former disease may exhibit some toxicity at times as measured by this procedure. A table of one such case, with seventeen estimations, is submitted. A second table of twenty-two cases is exhibited to reveal the close relationship of the two

9. Note in this connection that some patients with pemphigus apparently lose the element of toxicity just before death.

10. Macht, D. I., and Anderson, W. T.: J. Pharmacol. & Exper. Therap. **34**:365, 1928.

diseases. This naturally leaves the question of a condition of potential pemphigus or an evanescent toxic factor in the blood serum of erythema multiforme open to speculation.

A method of procuring serum, or serum and lymph, directly from the skin is also mentioned. This material has been studied in a number of cases, and it has been found that such fluid exhibits a less toxic character than does the blood, particularly in the same person. Studies of other characteristics or properties of this fluid have not yet been undertaken.

Many colleagues throughout the country have sent us specimens from time to time. Without their cooperation this study could not have been carried to the present stage.

ABSTRACT OF DISCUSSION

Dr. David Lieberthal, Chicago: I was impressed and fascinated by the serum diagnosis of pemphigus brought out by Dr. Pels and Dr. Macht. Since I have heard the second report my admiration has not diminished. I must say that the experienced dermatologists who have had occasion to see numerous cases of pemphigus will, as a rule, have no great difficulty in making the diagnosis, but I think that this method is valuable and will become more so as it becomes more generally available.

The two reports show a tremendous amount of work, yet we hope that the investigators will not tire in their work, but will stimulate others to follow their example. As we can judge from this report, there is a toxin in the blood of patients with pemphigus, and pursuing these studies may enable dermatologists in time to disclose the nature of this toxin and with it the basic cause of this baffling disease, which may lead ultimately, let us hope, to a cure for it.

Dr. Samuel C. Ayres, Jr., Los Angeles: The subject of pemphigus has interested me greatly in the past several years. One thought which occurs to me is that perhaps Vincent's organisms may play some rôle in pemphigus, and I wonder what the observations of the authors have been regarding this organism. I have never seen a patient with pemphigus who did not have severely infected teeth. In one patient I was able to secure a bacteriophage of *Staphylococcus aureus* and *albus* from the gums; the disease was changed by the use of this phage, the lesions on the face entirely clearing and those on the body to such an extent that they are nearly clear. Whether or not the response was due to the bacteriophage, I do not know.

In the scientific exhibit there was a case shown by a contributor from Ann Arbor in which the patient also responded well to a bacteriophage from *Staphylococcus aureus.*

Another interesting feature in these cases is the marked lowering of the phenolphthalein output of the kidney as determined both by hypodermic and by intravenous methods. I have had unsatisfactory results with tryparsamide.

Dr. Walter J. Higman, New York: From what I have seen of pemphigus in New York, I have no doubt that the test is of value. What stimulates my remarks is the discussion of the previous speaker, for I do not think that it is well to have his comments go into the literature unchallenged.

We see a great many cases of pemphigus in New York. I should say that the relationship of pemphigus to dental disturbances and also its relationship to certain

metabolic disorders is tenuous. I do not know how many cases of pemphigus I have seen, not under 50, and probably 200—I have not kept track of all of them—but I think that the incidence of dental disease to pemphigus is about that of diseased teeth to health. We see many patients with diseased teeth in other conditions than pemphigus, and I think that there is about the same corresponding relation in pemphigus as in other diseases.

In regard to renal function the same is true. Persons with pemphigus are human, and human beings have all kinds of disturbances. It does not follow that there is any relation between a given metabolic disease and a skin disease unless it is proved. There is no reason why persons with pemphigus should be less liable to renal disturbances than other people.

The reason I wish to emphasize these things is that these loose implications are constantly influencing opinion as to etiology. Pemphigus undoubtedly is a disease that runs a typical course, and the outstanding features are identical in all cases. I have maintained that in true cases of pemphigus the mortality averages 100 per cent, for I have never seen a patient get well. This is where we find the work of Dr. Pels and Dr. Macht of value, for we may be able to know from the start which cases are and which cases are not pemphigus without straining the point to look for unrelated etiologic factors. We will not then need to go so far in incriminating crossed eyes, corns and all absurd concomitants as the etiologic factors in pemphigus. The disease is a definite entity, as has been shown repeatedly.

Dr. Joseph Grindon, St. Louis: As to the difficulty of differentiating between different kinds of pemphigus, I have felt that what we call pemphigus is rather a symptom than a disease. I believe that a variety of toxins can cause it. It is precisely here that the Pels method will have the greatest value. Like Dr. Highman, I do not believe that we can link pemphigus with bad teeth or renal disease. We must remember the group of English cases that developed from contact with animal matter.

Dr. Lieberthal said that there should be no difficulty on the part of the trained dermatologist in recognizing pemphigus in the majority of cases. I agree with that, but perhaps not in all cases. I remember two cases that began apparently as erythema multiforme. One of these patients lived for a few months and then died of typical pemphigus. The fact that we are dealing with different conditions and do not know what they are may account for differences in the results obtained from the Davis treatment and other methods. In some cases this therapy has given excellent results, but in others both the Davis treatment and tryparsamide have failed to affect the disease.

Dr. George M. MacKee, New York: Unlike Dr. Lieberthal, I have often had considerable difficulty in differentiating pemphigus from other bullous diseases, such as erythema multiforme bullosum, dermatitis medicamentosa, dermatitis herpetiformis, stomatitis, etc. This is because I am in accord with those who believe that there is a chronic, comparatively benign type of the disease, and this type may simulate other chronic cutaneous disorders. Occasionally pemphigus begins in and is limited to the mouth for months or years. Finally, lesions develop on the body; the disease may then run an acute fatal course or a chronic course with remissions and exacerbations. In either case the condition is pemphigus, in my opinion. Somewhat analogous phenomena are seen in lupus erythematosus and lichen planus. The variation in the course of pemphigus possibly is an immunologic problem, one that cannot be explained satisfactorily at present.

I congratulate Drs. Pels and Macht for developing one of the few new, useful studies in dermatology. They have tested a number of my patients and thus far, when the test has been made under proper clinical conditions, the result has agreed with the clinical picture. The test seems to be of value, and it may help to settle the controversy relative to malignant and benign pemphigus.

Dr. Oscar L. Levin, New York: This test may mark a real advance in dermatology. I wish to ask whether there is a toxic index. For instance, in the case of one of my patients Dr. Pels reported a toxic index of 68. This patient was in excellent health and showed no lesions of the mucous membrane, but revealed a most pronounced Nikolsky sign.

Until recently I had believed that pemphigus was always fatal. However, I have in my practice a man, aged 75, who is in excellent health and who had a frank case of pemphigus several years ago. This diagnosis was confirmed by most of the dermatologists in New York. I know of another patient whom Dr. Wise treated and who is apparently cured. Therefore, it seems possible that there are clinical cases of pemphigus that may go on to a cure. There also seems to be a family tendency to pemphigus. The last patient to whom I referred had a son who died of pemphigus about four years ago. A patient under my care at the present time had an aunt who died of the disease. In regard to the discussion as to the ultimate outcome in pemphigus, I believe that practically every case of pemphigus terminates fatally. As to the relationship of the condition to any general disturbance, I may refer to the paper of Drs. Goldenberg and Highman in which they showed conclusively in their large group of cases that there was no such relationship.

Dr. Isaac R. Pels, Baltimore: In speaking of toxicosis, I may say that we know very little about it. We believe merely that plant experimentation is a method of measuring the toxic conditions in the blood of certain persons. Yet we have found that normal patients will at times give what we consider a toxic reading. This brings up the question of the method and the technic being open to considerable criticism. The technic is difficult, and the personal equation enters into it. There is some possibility of pitfalls slipping in, and for that reason we are not eager to recommend it as a 100 per cent method, or even as a method of certainty. However, despite the fact that it is not open to every one, we feel that if one man does it, as has been done, the personal equation will at least be kept down to a fair amount of certainty. Occasionally, too, we find that patients with definite pemphigus will give a normal reading. We cannot make much comment on that, except that we have found that just before death patients will give normal readings. Unfortunately, we do not see much pemphigus in Baltimore, and when we do it is over quickly, or we cannot sit by the bedside and get numerous specimens of blood. That is a great drawback.

In regard to the toxicosis, every one has observed pemphigus beginning in the mouth. I am fully appreciative of what Dr. Highman has suggested regarding Dr. Ayres' remarks concerning the teeth, for pemphigus may start as the result of many other conditions. In one case the disease started as Vincent's angina in which organisms were actually found, and the patient developed further lesions besides those in the mouth. The blood gave a toxic reading, although it was not very high, and from that time on we considered the case pemphigus, although at first it was not clinically pemphigus. The patient soon died of true pemphigus. The other toxic conditions apparently have nothing to do with pemphigus, except perhaps erythema multiforme, as suggested in our paper.

The other matters, regarding the relationship of the index and the clinical condition, we are not prepared to say anything about, further than the remarks just mentioned. Unless we have an opporunity to study these cases more in detail, we cannot make any definite statements.

With regard to family history, it is interesting to obtain it in cases in which the patient has pemphigus. We have a patient in Baltimore who was exhibited at one of the meetings of the American Dermatological Association as cured. He had no lesions in the mouth, but stated that he occasionally had other lesions on the body. At the only opportunity we had for obtaining blood, he gave a toxic reading.

We do not wish to give the impression that one reading is sufficient. I think that if we could accomplish it we should always have at least two or three readings. I wish to take this opportunity to express to my colleagues the opinion that if the first reading is positive it should be checked to make sure that the method is working correctly, and if it is negative (with clinical pemphigus) we should like to have an opportunity, as it were, to prove the case.

ESOPHYLAXIS *

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That evil spirits sought to escape from the body by the medium of skin eruptions was an ancient belief. Evidence of this attitude of mind is found in folk lore of many primitive peoples and also in inscriptions that form their written history.

Since evil spirits were seeking to escape, treatment for the skin disease was deemed unwise, for it served but to drive back these evil forces, and they wreaked their vengeance on the inner and vital organs. Even among some mothers today the same belief persists. Treatment for a skin disease may "drive it in," they claim.

Physicians have described apparent constitutional improvement coincident with the appearance of the eruption during the course of exanthems. The case histories given by physicians point to these facts: 1. In exanthems, an intense eruption is often followed by a mild course and infrequent sequelae. 2. A mild, cutaneous reaction is apt to run a protracted course with subsequent complications. Can it be that modern science is finding evidence of the basic soundness for old wives' tales?

There is a recent theory among syphilologists based on recorded case histories. They have compiled data that seem to indicate that persons exhibiting severe secondary eruptions have subsequently shown no evidence of visceral lesions. On the other hand, patients who later show dementia paralytica and tabes infrequently disclose a history of having had a secondary eruption of the skin.

Exfoliative dermatitis is the most serious cutaneous complication that results from the administration of arsphenamine. Usually it appears after several injections of the drug. It is often complicated by fever and symptoms referable to disturbances of the function of internal organs. In this connection there have been observed positive

* Submitted for publication, July 31, 1930.

* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

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Wassermann reactions of the blood prior to the appearance of the skin eruption. After the appearance of the dermatitis, the positive reaction of the blood has often been noted to become negative. These observations have led to a belief in the theory that a severe skin reaction may have a distinct curative effect on the disease.

There is now among clinical observers the tendency to consider the skin itself as a potential source of protective bodies or secretions that insure the entire physical organism against micro-organisms and toxins.

REVIEW OF THE LITERATURE

Kreidl [1] introduced the hypothesis that there is a secretion of the skin that is necessary for the protection and maintenance of life. Thus he accounted for the fatalities among persons with comparatively mild burns of the skin by assuming that in these cases there had been destruction or interference with the function of the secretion.

Hoffmann [2] elaborated the theory of Kreidl. He used the term esophylaxis to denote the form of protection obtained from this hypothetic mechanism of defense.

That the skin of adults is more capable of repelling infections, especially those due to pyogenic micro-organisms, than is the skin of infants and children is generally accepted by physicians. The skin of adults has gradually built up for itself a certain immunity against micro-organisms and their toxins, which invade and live on the skin.

Hoffmann termed this self-immunization of the skin against external noxious agents "exophylaxis," to distinguish it from esophylaxis, which has for its specific purpose the protection of the vital internal organs. Especially does esophylaxis guard the nervous system against various micro-organisms and their poisons.

According to him, this is accomplished by the production of immune bodies by the epithelium of the rete malpighii. Not only does the epithelium regenerate the cells of the epidermis, but it produces the protective bodies.

In order to stimulate the skin to produce these protective bodies, Huebner [3] recommended inunction treatment in syphilis, in preference to intravenous medication. By rubbing mercury into the skin, the skin is stimulated to produce this protective secretion, bringing into play the additional factor of immune bodies.

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1. Kreidl, A.: Physiologie der Haut, in Mracek: Handbuch der Hautkrankheiten, Vienna, Alfred Hölder, 1904, vol. 1, p. 183.

2. Hoffmann, Erich: Ueber eine nach inneren gerichtete Schutzfunction der Haut, Esophylaxie, Deutsche med. Wchnschr. **45**:1233 (Nov. 6) 1919.

3. Huebner: Schmierseifeneinreibungen als Mittel zur Verbesserung der Syphilisbehandlung, Deutsche med. Wchnschr. **48**:157 (Feb. 2) 1922.

In cases of dermatitis resulting from antisyphilitic treatment, Buschke and Freymann [4] observed definite benefits in the clinical and serologic signs of syphilis. The Wassermann reaction became negative, and they noted a general improvement in the course of the syphilitic infection. Ordinarily, they claimed any additional trauma in a syphilitic patient would aggravate the disease. In their cases of severe dermatitis not only was the improvement marked, but there was no accentuation of the syphilitic infection. The explanation of this phenomenon probably lies in the nonspecific action of the skin, which is stimulated to produce immune bodies, bringing into play the principle of esophylaxis.

In support of these observations numerous papers were published from various clinics. Bruck,[5] Levi,[6] Klaar,[7] Fabry and Wolff,[8] Stuehmer,[9] Rosenthal,[10] Cannon [11] and Franklin [12] have seen definite improvement following a drug eruption in syphilis. The Wassermann reaction of the blood became negative and general improvement was noted. Some of the cases reported by these authors were not of the severe type, yet definite improvement was noted. However, none of these cases has been observed over a period of years, except those of Cannon.

Lees,[13] in addition to taking the Wassermann test of the blood, examined the spinal fluid. In two of his cases of dermatitis, the spinal fluid was positive although the blood was negative. He thought that the Wassermann test of the blood usually gives a negative reaction during the acute stages of the skin eruption. It may be reversed, however, after the eruption has subsided.

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4. Buschke, A., and Freymann, W.: Ueber den Einfluss der Salvarsanexanthema auf den Verlauf der Syphilis, Berl. klin. Wchnschr. **58**:347 (April) 1921.

5. Bruck, C.: Ueber den Einfluss der Salvarsan Exanthema auf den Verlauf der Syphilis, Berl. klin. Wchnschr. **58**:518, 1921.

6. Levi, S.: Ueber den Verlauf der Syphilis nach toxischen Exanthemen, Berl. klin. Wchnschr. **58**:1137, 1921.

7. Klaar, Josef: Zur Frage der im Verlaufe antiluetischer Kuren auftretenden Hg-bezichungsweise Salvarsandermatitiden, Wien. klin. Wchnschr. **35**:266 (March 23); 297 (March 30) 1922.

8. Fabry and Wolff: Ueber die Behandlung der Syphilis mit Neosilbersalvarsan und andere Probleme, der Salvarsanbehandlung, Med. Klin. **18**:106 (Jan. 22) 1922.

9. Stuehmer, A.: Die salvarsan Exanthema, Dermat. Ztschr. **34**:304, 1921.

10. Rosenthal, F.: Salvarsanintoxication und staphylokokken Empfindlichkeit, Klin. Wchnschr. **31**:1460 (July 30) 1923.

11. Cannon, A. Benson: A Study of the Wassermann Reaction Following Dermatitis and Jaundice from Arsphenamine, Am. J. Syph. **14**:100 (Jan.) 1930.

12. Franklin, John L.: Salvarsan Dermatitis, Brit. J. Dermat. **42**:175 (April) 1930.

13. Lees, David: Exfoliative Dermatitis Following on the Administration of Arseno-Benzol and Its Derivatives, Brit. J. Dermat. **34**:339, 1922.

Kaiser,[14] Golay and Silvestre,[15] Benveniste[16] and Kleinschmidt[17] reported changes in the Wassermann reaction of the blood, but they refuted the previously stated observation that the syphilitic infection is influenced by the products of the eruption. Kaiser said that it has not been proved that syphilis is benefited by the eruption. Golay and Silvestre expressed the belief that the Wassermann change is only of a fleeting character.

The spinal fluid has been examined by Birnbaum.[18] In two of his seven patients who had cases of severe dermatitis the Wassermann reactions of both the spinal fluid and the blood were negative for seventeen and twenty-four months, respectively.

A warning was sounded by Gougerot[19] against too great optimism in negative reports, and he insisted that treatment should not be neglected because of apparent serologic improvement. He denied any definite clinical or serologic improvement as a result of the drying dermatitis, and cautioned that vigorous antisyphilitic treatment must be continued.

Kuznitsky and Langner[20] agreed with Gougerot. They maintained also that vigorous antisyphilitic treatment should be continued because any improvement that is noted can only be temporary. While admitting having seen serologic changes as a result of the eruption, they did not think that these changes were of any importance in the course of the disease. They stated, on the contrary, that there may be a change for the worse soon after the dermatitis has disappeared.

Stuempke[21] expressed the doubt that any conclusion may be drawn from the cases reported. He claimed that in a disease like syphilis, which runs a long course and is varied in its manifestations, all kinds

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14. Kaiser, H.: Ein Beitrag zur Kenntnis der Salvarsandermatitis, Wien. med. Wchnschr. **74**:2795, 1924.

15. Golay, J., and Silvestre, P.: L'érythrodermie consécutive au traitement arséno-benzolique, Ann. d. mal. vén. **16**:321 (June) 1921.

16. Benveniste, E.: Exanthèmes salvarsaniques et évolution de la syphilis, Presse méd. **29**:904 (Nov. 12) 1921.

17. Kleinschmidt, L.: Zur Frage des Einflusses toxischer Exantheme auf den Ablauf der Syphilis, Deutsche med. Wchnschr. **48**:981 (July 21) 1922.

18. Birnbaum, G.: Zur Frage des Einflusses schwerer Exantheme nach Salvarsan und bezichungsweise Salvarsan-Quecksilber Behandlung auf den Verlauf der Syphilis, Berl. klin. Wchnschr. **59**:1270, 1921.

19. Gougerot: Recidives de syphilis viscérales, cutanées, muqueuses, serologiniques peu de temps après une erythrodermie exfoliante post arséno-benzolique, Bull. et mém. Soc. méd. d. hôp. de Paris **45**:1339, 1921.

20. Kuznitsky, E., and Langner, W.: Ueber salvarsan Exantheme, Berl. klin. Wchnschr. **58**:1534, 1921.

21. Stuempke, G.: Ueber den Einfluss toxischer Exantheme auf dem weiteren Verlauf der Syphilis, Med. Klin. **19**:80 (Jan. 21) 1923.

of variations may be observed from which it is perilous to draw general conclusions.

In this country, Stokes [22] agreed with the more conservative observers, that it is questionable whether the generalized dermatitis really has a curative effect on the infection. The changes in the Wassermann reaction, however, have been noted by him. Kerl [23] was of the opinion that changes in the Wassermann reaction are insufficient evidence as to the effect of dermatitis on the course of syphilis. He said that treatment must be as vigorously given as prior to the onset of the eruption.

Westphalen [24] reported a case of migraine in which the patient was apparently cured following a phenobarbital rash. The patient suffered for a long time from headaches, which were diagnosed as of the migraine variety. As phenobarbital was periodically prescribed, an eruption developed. Following this eruption the attacks of migraine completely ceased.

The apparent change in the Wassermann reaction and clinical improvement were thought by Kyrle [25] to be a result of the elevation in temperature that accompanies the eruption. It is this phenomenon, rather than any specific secretion of the skin that he credited with the improvement noted following the drug eruption.

The problem of esophylaxis was viewed in a different light by Lesser [26] when he said that it is possible that the disease may run a different clinical course in patients who have had a drug eruption than it does in those who have not had an eruption. If the dermatitis influences the course of syphilis favorably, it is probably due to the elevation of temperature that as a rule is a factor in the disease. He claimed that it is inconceivable that a damaged skin such as appears in arsphenamine dermatitis should have an esophylactic effect on the inner organs. It is also possible that the improvement noticed may be due to the general cellular reaction occurring in cases of dermatitis, such as an increase in the blood count and hyperplasia of the lymph glands.

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22. Stokes, John H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1928, p. 236.

23. Kerl, W.: Prophylaxe und Therapie der Salvarsan Dermatitiden, in Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1928, vol. 18, p. 634.

24. Westphalen, H.: Arzneiexanthem als unspezifischer Heilfactor, Deutsche med. Wchnschr. **53**:1141 (July 1) 1927.

25. Kyrle, J.: Die Bedeutung des unspezifischen Heilfactors in der Syphilis Therapie, Dermat. Wchnschr. **35**:313, 1922.

26. Lesser, F.: Ueber den Einfluss toxischer Exantheme auf den Verlauf der Syphilis und zur Frage der Esophylaxie, Berl. klin. Wchnschr. **58**:1210 (Oct.) 1921.

Recently Cannon, as a result of his study on the Wassermann reaction in cases of syphilis exhibiting cutaneous reactions to arsphenamine, concluded unqestionably that there were favorable clinical and serologic changes. Even when the patient had not received what is commonly regarded as sufficient treatment to produce a negative Wassermann reaction and a clinical cure, such improvement has been observed.

Franklin claimed that during an attack of postarsphenamine dermatitis the previously positive Wassermann reaction usually becomes negative. He cited seven cases in which this Wassermann change was effected. He expressed the belief that this was only a temporary change. He was of the opinion that if no further antisyphilitic treatment is given, the Wassermann reaction becomes positive again within six months.

REPORT OF CASES

CASE 1.—B. T., a woman, aged 35, married, an Austrian, a dressmaker, was admitted to the Mount Sinai Dispensary with active lesions of secondary syphilis. The Wassermann reaction of the blood was 4 plus. She had been given two intramuscular injections of bismuth and two intravenous injections of neoarsphenamine at intervals of three days. Immediately after the injection of the third dose of neoarsphenamine a mild, generalized, scaly dermatitis developed. Treatment consisted of intravenous injections of sodium thiosulphate. Later, injections of bismuth and two intravenous injections of silver arsphenamine were administered. The Wassermann reaction of the blood was then negative, and no clinical evidence of the disease was found. The Wassermann tests of the spinal fluid and the blood gave negative results at a later date. Recently another Wassermann test of the blood gave negative results, and the general condition of the patient was excellent.

CASE 2.—N. A., an unmarried man, aged 24, an upholsterer, was referred by his physician for treatment for a severe generalized exfoliative dermatitis following injections of neoarsphenamine. He was in the secondary stage of syphilis; the Wassermann reaction of the blood was 4 plus, and the eruption had appeared after the third injection. The patient was admitted to the Beth Israel Hospital, and after a most stormy course with visceral complications he was discharged from the hospital after a stay of about two months. The three Wassermann tests performed in the following year gave negative results. In the past three years he has received several courses of bismuth, and four Wassermann tests performed at regular intervals have proved to be negative. The Wassermann reaction recently taken was also negative, and the patient's general condition was excellent.

CASE 3.—N. L., a woman, aged 22, married, had active lesions of secondary syphilis. Following intensive antisphilitic therapy, consisting of seven intravenous injections of neoarsphenamine and intramuscular injections of bismuth given in a period of five weeks, a generalized exfoliative dermatitis developed. There was also mild jaundice. The urine showed a strong reaction for arsenic. The Wassermann reaction of the blood was 4 plus on admission. Subsequent to the injection of eight doses of sodium thiosulphate the dermatitis had almost completely disappeared, and the Wassermann reaction was plus-minus about two months later. She is now receiving intramuscular injections of bismuth.

CASE 4.—A. S., a married woman, aged 23, had been treated at a Brooklyn hospital for secondary syphilis. The Wassermann reaction was 4 plus. When admitted to the Mount Sinai Dispensary, she presented a fading, generalized eruption. The urine contained arsenic. After fifteen intravenous injections of sodium thiosulphate and fifteen subsequent intramuscular injections of bismuth the Wassermann reaction was plus-minus. She is still receiving injections of bismuth.

CASE 5.—J. R., a man, aged 31, born in the United States, was admitted to the Mount Sinai Dispensary with primary and secondary syphilis. The Wassermann reaction was 4 plus. After twelve intramuscular injections of bismuth and nine intravenous injections of neoarsphenamine, the Wassermann reaction was negative. After the fifth intravenous injection of neoarsphenamine a diffuse eruption developed. After a course of bismuth, the Wassermann reaction was still negative, but after five weeks it proved to be 2 plus. Six months before this paper was written a syphilitic papular eruption of the palm was observed. After a course of six intravenous injections of neoarsphenamine and ten intramuscular injections of bismuth the Wassermann reaction was 3 plus. The patient is now receiving bismuth and neoarsphenamine.

CASE 6.—F. D., a man, aged 43, Russian by birth, married, with tertiary syphilis, had had several injections of mercury four years previous to admission, but no other form of medication. When he was admitted the Wassermann reaction was 1 plus with the Kahn method and 3 plus with the usual technic. The patient showed evidence of tabes. After several injections of neoarsphenamine an exfoliative dermatitis developed. Subsequent to the disappearance of the dermatitis, the Wassermann reaction was 3 plus. The spinal fluid gave a negative Wassermann reaction, but the colloidal gold curve was characteristic of dementia paralytica.

CASE 7.—B. M., a married man, aged 44, was admitted to the Mount Sinai Dispensary with clinical signs of tabes and a Wassermann reaction of the blood of 4 plus. An eruption had appeared after three intramuscular injections of mercury and the third intravenous injection of neoarsphenamine. With the subsidence of the eruption, treatment with mercury and bismuth was given, and following this course a 4 plus Wassermann reaction was again found. After more than two years of treatment with bismuth no clinical improvement or serologic modification was obtained.

CASE 8.—E. L., a woman, aged 35, married, had received nine intravenous injections of neoarsphenamine and thirteen intramuscular injections of bismuth for treatment for iritis. The Wassermann reaction of the blood was positive. A diffuse eruption in large patches appeared after the ninth injection of neoarsphenamine. Under intravenous injections of sodium thiosulphate, the condition of the skin disappeared. Since then several courses of injections of bismuth had been administered. The Wassermann reaction proved negative on several occasions, and the patient's constitutional condition was excellent.

CASE 9.—P. D., a woman, aged 52, married, a patient at the Beth Israel Hospital, had a severe universal exfoliative dermatitis and internal complications. Ten weeks prior to her admission her physician had found a Wassermann reaction of the blood of 4 plus. He had administered neoarsphenamine intravenously, and after the tenth injection the eruption had appeared. On admission the diagnosis was tabes complicated by exfoliative dermatitis. Besides local and constitutional treatment, the patient was given numerous intravenous injections and tablets orally,

of sodium thiosulphate. The spinal fluid was found to be normal, and two Wassermann tests of the blood gave negative results.

CASE 10.—M. L., a merchant, aged 51, married, had tertiary syphilis. He had received ten intravenous injections of arsphenamine and ten intramuscular injections of mercury. When taken two months prior to the appearance of the exfoliative dermatitis, the Wassermann reaction was 4 plus. Treatment consisted of confinement to bed, injections of sodium thiosulphate and local applications. He improved under this regimen. The patient also suffered from acute nephritis. A Wassermann test done five months after the patient was first seen gave a reaction of 2 plus. One course of bismuth was administered intramuscularly, and at the end of the course, the Wassermann reaction was negative with the plain antigen and plus-minus with cholesterolized antigen. Several Wassermann tests performed during the past year proved negative and his general condition was excellent.

CASE 11.—A. V., a woman, aged 53, married, a patient at the Mount Sinai Hospital, had a severe form of generalized exfoliative dermatitis. She had received treatment for tertiary syphilis, and the eruption had developed after the ninth injection of neoarsphenamine. The Wassermann reaction of the blood was 4 plus prior to beginning treatment, and was found to be 4 plus during her stay at the hospital. Urinalysis showed arsenic. The patient received sodium thiosulphate intravenously.

CASE 12.—B. C., a married man, a Russian, a clerk, entered Mount Sinai Hospital with a generalized exfoliative dermatitis. He had suffered from tertiary syphilis of the central nervous system. The Wassermann reaction of the blood was said to have been positive. He had been given eight intravenous injections of neoarsphenamine and several intramuscular injections of bismuth. The eruption of the skin had developed following the eighth injection of neoarsphenamine, four weeks prior to admission. Sodium thiosulphate was administered intravenously and orally. Urinalysis showed arsenic, and the Wassermann reaction at that time was 4 plus.

CASE 13.—C. C., aged 45, married, a plumber, was referred by his physician because of a generalized exfoliative dermatitis. He had received forty intravenous injections of arsphenamine and two intramuscular injections of mercury for one year. The Wassermann reaction was still 3 plus. For three months he received injections of sodium thiosulphate, supportive treatment and local applications. The Wassermann reaction was still 3 plus. He received a course of bismuth intramuscularly, but the Wassermann reaction at the end of the course still remained 3 plus. Another course of bismuth was given that reduced the Wassermann reaction to 1 plus. The lesions on the hands and feet remained unimproved. Following a short rest period the patient received three more courses of bismuth, and on three different occasions, the last being reported three months previous to the writing of this paper, the Wassermann reaction was 2 plus.

COMMENT

A digest of the literature on esophylaxis reveals an attempt on the part of some writers to show a definite favorable relationship between the cutaneous reaction and the subsequent protection afforded the general constitution. Study of our own series of thirteen cases of exfoliative dermatitis leads us to believe that it is most difficult to evaluate with any degree of accuracy the phenomenon of esophylaxis.

Among thirteen cases of exfoliative dermatitis resulting as untoward effects from arsphenamine therapy, there were five cases of secondary syphilis, two of them showing remains of initial lesions when the antisyphilitic treatment was inaugurated. A mild attack of exfoliative dermatitis in one patient (case 1), had developed, while the other four had severe attacks. Subsequent to the disappearance of the dermatitis in the patient with the mild attack, and in one (case 2) with a severe attack, there were reversals to normal, in the Wassermann reactions, and no clinical evidences of the disease reappeared.

In two of the patients (cases 3 and 4) after severe attacks the Wassermann reactions were altered from 4 plus to plus-minus, and clinical signs of the disease did not reappear. It is possible to attribute the improvement in these cases to the antisyphilitic treatment alone. Those who favor the theory of esophylaxis may argue that the clinical and serologic improvement indicated the good effects achieved by the products of the inflammatory reactions.

In the fifth case, that of a patient with primary and secondary syphilis, there had been sufficient antisyphilitic treatment administered to produce a negative Wassermann reaction and to heal the active syphilitic lesions. The dermatitis had appeared during a second course of treatment, but notwithstanding this and further treatment, the patient showed recurrence of active lesions and a positive Wassermann reaction.

The cases of eight patients with tertiary syphilis with complicating exfoliative dermatitis are included. Two of them had diseases of the central nervous system. One (case 6) had had a moderately intense reaction and the second case (case 7), a severe reaction. In both of these patients the serologic and clinical symptoms were unaffected. Of the other six, one (case 8), who had had a mild cutaneous reaction, showed a complete reversal of the Wassermann reaction from 4 plus to negative and a decided improvement in the constitutional condition. Among the remaining five with severe complications of the skin, two patients (cases 9 and 10) showed serologic and clinical improvement after the exfoliative dermatitis and three (cases 11, 12 and 13) despite active antisyphilitic treatment and the occurrence of complicating severe attacks of exfoliative dermatitis, did not show improvement.

Thus, of thirteen patients, seven showed improvement serologically and clinically after having had inflammatory reactions in the skin. In the other six, no improvement was detected.

Of course in dealing with a biologic problem of this nature, it is impossible to state with mathematical precision whether the specific means of attacks or the nonspecific agents liberated from the skin were the factors in changing the course of the disease. This is especially

difficult in a disease like syphilis, which is so variable in its behavior. The whole subject is most complex, and it is hard to distinguish between specific and nonspecific effects.

It may be claimed that the occurrence of fever may play a rôle in stimulating the defensive mechanism, but in our group of cases there was apparently no relation to the ultimate outcome. Some of the patients with fever were apparently not benefited.

The point that we wish to emphasize is that the appearance of exfoliative dermatitis should not lull either physician or patient into a sense of security. Treatment should not be stopped because dermatitis has been noted. In these individual cases the physician should exercise good judgment in the selection of his method of attack, but the treatment for syphilis should continue. Arsphenamine may be employed, but it should not be administered until at least six months after the subsidence of the eruption. When it is once more employed, extreme caution and expert management must be observed. Special contraindications to the continued treatment are chronic pruritus and cutaneous inflammation. All forms of irritation of the skin must be avoided.

CONCLUSIONS

1. Esophylaxis is the term used by Hoffmann to designate a hypothetic defensive function of the skin.

2. An extensive literature has been accumulating since Kreidl expounded the theory in 1904. Many of the writers on the subject believe that this defensive action of the skin may be stimulated by a cutaneous reaction as it occurs in exfoliative dermatitis from arsphenamine. On the other hand, it is by no means an unanimous opinion of the writers that the favorable clinical and serologic results of postarsphenamine exfoliative dermatitis are permanent.

3. We have herein reviewed the literature on the subject, adding a group of our own cases that have been studied. From this we have concluded that further observation of cases of postarsphenamine dermatitis is necessary to substantiate the hypothetic theory that such a defensive mechanism of the skin as described and termed "esophylaxis" does exist.

4. But finally it must be emphasized that danger menaces those who accept the improvement or apparent cure from postarsphenamine dermatitis as permanent. Following the dermatitis cautious antisyphilitic treatment should be reinstituted in all cases.

2 East Fifty-Fourth Street.

AN APPRAISAL OF THE NEWEST ARSPHENAMINE SYNTHETIC, BISMARSEN, IN THE TREATMENT FOR SYPHILIS

BASED ON SEVEN THOUSAND SIX HUNDRED AND SIXTY-SIX INJECTIONS IN THREE HUNDRED AND FORTY-ONE CASES DURING FIVE YEARS *

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PHILADELPHIA

Bismuth arsphenamine sulphonate is an arsphenamine synthetic devised by Prof. G. W. Raiziss,[1] having, according to the originator, an arsenical content of from 12 to 15 per cent and a bismuth content of from 23 to 25 per cent. The clinical study of this preparation in the treatment for syphilis was begun by Chambers and one of us (J. H. S.) in 1925, and two years' observation of its effects was reported by them in June, 1927.[2] The following report includes a summary of three more years' experience with the use of the drug in clinical practice, the results of a reexamination of 94 of the original 204 patients, and a résumé of the literature, including the 6 papers by other authors that have appeared since the original report by Chambers and one of us.[1] This presentation does not deal in finalities and suffers inevitably from the defects attendant on evaluation of any method of treatment for syphilis. It has, moreover, been impossible to enlarge the series by many patients treated exclusively with bismarsen. The use of the drug in combination with others will probably be a prevailing method for some time to come, and a few conclusions are suggested by this part of our material. Our observations are the most interesting and the best worked out in early syphilis and the least significant in latent

* Submitted for publication, Aug. 16, 1930.

* Aided by a grant from the Committee on Research in Syphilis, Inc.

* Read before the Section on Dermatology and Syphilology at the Eighty-First Session of the American Medical Association, Detroit, June 25, 1930.

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1. Raiziss, G. W.: In discussion of Stokes and Chambers (footnote 2, p. 1504).

2. Stokes, J. H., and Chambers, S. O.: Bismuth Arsphenamine Sulphonate: Clinical Observations on a New Arsphenamine Synthetic in the Treatment of Syphilis, J. A. M. A. **89**:1500 (Oct. 29) 1927.

syphilis and in prenatal infections, which were practically all latent. The number of cases observed under any individual category of the disease is not large, but it is materially larger than in other series thus far reported, and carefully enough controlled to seem to justify certain important tentative conclusions. All things considered, we believe that the conservative hope expressed by Raiziss [1] that this drug would prove a useful addition to resources available for the treatment of patients with syphilis is being realized.

We briefly review the following significant facts from earlier reports. Bismuth arsphenamine sulphonate should logically be an efficient drug, for it is a highly rational combination, in one medicament, of a spirillicide and a defense builder. It is given intramuscularly,

TABLE 1.—*The Treatment Technic of Various Authors*

Authors	Type of Syphilis	Dose per Injection, Gm.	Injections per Course	Courses	Rest Intervals Between Courses, Weeks
Stokes and Chambers..... (1927)	Early latent tertiary neurosyphilis prenatal	1st: 0.1; others: 0.2	20 2 a week	2-3	0 to 4 average 2
Stokes and Chambers..... (1927)	Cardiovascular visceral	0.05; final 0.2	20 1-2 a week	2	0 to 4
O'Leary..... (1928)	Early Wassermann-fast	0.2	8 every 4 days	4	4
Tobias..... (1928)	Tabes	0.2	20 (?) 3 a week	...	2 to 3
Elliott..... (1929)	Early latent prenatal	(No data)	20 1 a week	1-3	(No data)
Kolmer..... (1931)	Early chronic prenatal	0.2; 0.1-0.2	10 every 5-7 days	4	(No data)
Stokes, Miller and Beerman.	Early latent tertiary neurosyphilis prenatal	1st: 0.1; others 0.2; 0.001-0.2	20 1-2 a week, mostly 1	1-5	0 to 4
Stokes, Miller and Beerman.	Cardiovascular visceral	0.05-0.2	20 1-2 a week	1-4	0 to 4

which should make it available when intravenous therapy is difficult or contraindicated. It is of comparatively low toxicity, though not free from all serious dangers. The dose for adults is from 0.1 Gm., initial dose, to 0.2 Gm. per injection as a routine. The drug is dissolved in 1 cc. of water containing butyn as a local anesthetic. The frequency of injection of the full dose varies from once in 2 to once in 7 days. Courses vary from 8 injections each (O'Leary [3]) to a continuous series of 40 or more injections. Where courses are used with rest intervals, from 2 to 4 series totaling 40 injections are in common use. We have given as high as 100 injections to a patient without untoward event. There seem to be no empiric or rational limits to the toleration of the drug per se, except as determined by individual reactivity.

3. O'Leary, P. A.: Bismuth Arsphenamine Sulphonate: A New Synthetic Drug for Intramuscular Use in the Treatment of Syphilis, Arch. Dermat. & Syph. **18**:372 (Sept.) 1928.

LOCAL AND GENERAL REACTIONS TO THE DRUG

Local pain and other reactions constitute serious drawbacks to the availability of a drug in the treatment for syphilis. With bismarsen, by a proper technic, such reactions can be reduced to an almost negligible proportion. Emphasis should be placed on the complete solution of the drug in ampule, the use of from 2 to 4 minims (from 0.12 to 0.24 cc.) of butyn solution (2 per cent) in the water, the administration of the drug with a small bore long needle, well to the upper outer quadrant of the buttock (Stokes) and the prolonged massage of the site of injection (Tobias [4]). We have noted that failure to massage the site of injection makes much of the difference between the tolerance of one, and that of two, injections per week.

In the entire series of 7,666 injections, local reaction sufficient to be notable occurred following 2 per cent of the injections and in 35.5 per cent of the patients. Pain and stiffness, the chief types of reaction, are evenly distributed throughout the grades of intensity from 1 to 4. Referred pain down the leg is rare (1 case). Only 2 abscesses were observed. The local reaction is most marked from the second to the third day. Most of the local reactions occur with the first five injections. They are about equally frequent in colored and white races, but slightly more frequent in women than in men. Of the original Stokes-Chambers series, 32 per cent had local reactions, while with the subsequent injections the frequency was 31.2 per cent. This practically identical incidence seems to indicate that there is no gain in the controllability of local reaction in later lots of the drug, though efforts have been made in this direction. Local reaction is markedly proportional to age, the young (from 1 to 20 years) having local reactions at the rate of 15.6 per cent, those in early adult life (from 21 to 40 years) at the rate of 35.6 per cent, those in middle life (from 41 to 60 years) at the rate of 46.3 per cent and the old (from 61 to 80 years) at the rate of 57.1 per cent. Children tolerate adult dosage surprisingly well. General reactions fail to show a similar age distribution. Local reactions are most common in primary and secondary cases and cardiovascular cases (from 45 to 50 per cent) and least common in cases of neurosyphilis and of prenatal syphilis (from 19 to 20 per cent). In cases of neurosyphilis in which Kolmer,[5] as well as ourselves, noted this exceptional tolerance, the effect is probably due to hypesthesia attendant on neurologic changes, while the prenatal cases show the tolerance of childhood.

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4. Tobias, N.: Clinical Results from the Use of Bismarsen in Tabes Dorsalis, Am. J. Syph. **12**:536 (Oct.) 1928.

5. Kolmer, J. A.: Bismuth Arsphenamine Sulphonate (Bismarsen) in the Treatment of Syphilis and Other Spirochetic Infections, Arch. Dermat. & Syph. **21**:394 (March) 1930; The Combination Chemotherapy of Syphilis, J. Chemotherapy **6**:43 (Oct.) 1929.

In 10 of our 121 cases in which there were local reactions, treatment was discontinued, while in 3 cases the amount of butyn was increased with good effect. In 56 of the remainder, hot compresses and massage controlled the reactions, and in the rest treatment was continued, with only an occasional mild reaction.

General reaction to bismarsen occurred following 0.5 per cent of the injections and in 11 per cent of the patients. A comparison of our data with those of other observers is given in table 2. Comment should be made on the fact that we have observed in this series the first reported case of hemorrhagic purpura following bismarsen. A woman aged 45, with latent syphilis, had chills from one to three hours after her thirty-third injection, and then developed purpura of the arms, legs and lips, with bloody stools. She disappeared from observation and could not be found, so that additional observations and the outcome are not available. In view of the fact that O'Leary, Tobias and Kolmer did not observe this type of reaction, and that other reports do not mention it, the personal experience of one of us (J. H. S.), who has knowledge of three additional cases, in all of which recovery took place, is of interest. It is evident that this extremely dangerous capacity of the sulphoxylate arsphenamines, including neoarsphenamine and sulpharsphenamine, to cause grave injury to the hematopoietic system, is likewise present in bismarsen and must be reckoned with in determining its ultimate safety and usefulness. In other respects, it is evident that bismarsen is a drug of rather low systemic toxicity, though its superiority to neoarsphenamine in a proper dosage and with a proper administrative technic is not yet demonstrated. It makes, particularly, a valuable alternate to the other arsphenamines in case of cutaneous and other complications. Bismarsen cannot, however, be substituted for other arsphenamines in cases in which a primary exfoliative reaction due to specific sensitiveness to the arsphenamine radical, as in the case reported by Schoch,[6] has developed. O'Leary also had a severe case following bismarsen which relapsed some months later following an injection of bismuth. In 1 of our cases, pruritus developed under treatment, while Kolmer reported 3 cases of pruritus in his series. The frequency of primary exfoliative dermatitis with bismarsen is then not greater than once in 5,556 injections (combining the figures of O'Leary,[3] Elliott,[7] Kolmer [5] and ourselves, and excluding those of Tobias [4] and O'Leary and Montgomery,[8] who did not state the number

6. Schoch, A. G.: Arsphenamine Sensitization Tests Including a Report of Arsenical Dermatitis Due to the Arsenobenzol Radical of Bismarsen (Bismuth Arsphenamine Sulphonate), Am. J. Syph. **14**:75 (Jan.) 1930.

7. Elliott, J. A.: Bismuth Arsphenamine Sulphonate for Intramuscular Use in Syphilis, South. M. J. **22**:785 (Sept.) 1929.

8. O'Leary, P. A., and Montgomery, H.: Results in the Treatment of Acute Syphilis with Bismarsen, J. Chemotherapy **6**:39 (Oct.) 1929.

TABLE 2.—*General Reactions Following Injections*

Author	Injections	Nitritoid Crisis	Gastro-Intestinal Reaction	Fever	Exfoliative Dermatitis	Other Skin Reactions	Jaundice	Hemorrhagic Purpura	Cerebral Reaction	Neuritis	Renal Disturbance
Stokes and Chambers (1927)	4,118	3 cases	Vomiting, 3 cases	Absent	Absent	Bi* line, 2 cases	Absent	Absent	Absent	Absent	Absent
O'Leary (1928)	1,145	2 delayed cases	Absent	(No data)	1 case recurred under Bi* small dose 4 mo. later	Gingivitis, 1 case	Absent	Absent	Absent	Absent	Absent
Tobias (1928)	....	Absent	Absent	Absent	Absent	Bi line, 1 case	Absent	Absent	Absent	Absent	Negligible
Elliott (1929)	1,500	Severe, 1 case; mild, 4 cases	Vomiting, 4 cases	(No data)	(No data)	(No data)	1 case	(No data)	(No data)	(No data)	(No data)
Kolmer (1930)	800	Mild, 2 cases	Severe reactions absent	(No data)	Absent	Pruritus, 3 cases	Hepatitis and jaundice, 2 cases	Absent	Absent	Tingling fingers and toes, 2 cases	Absent
Stokes, Miller and Beerman	7,666	Mild, 8 cases	Nausea and vomiting, 16 cases	Absent	1 case (A. G. Schoch's report)	Mild dermatitis, 3 cases; urticaria, 1 case; toxic erythema, 2 cases; pityriasis rosea-like exanthem, 2 cases	Absent	1 case	Absent	Absent	Absent

* Bi = potassium, tartrobismuth, etc.

of injections). This compares favorably with the incidence of 1 in 5,260 injections in the case of neoarsphenamine, and 1 in 1,850 in the case of original arsphenamine in the Meirowski statistics. The drug is markedly superior to sulpharsphenamine, with which the incidence of exfoliative dermatitis at last report was approximately 1 in 700 injections.

Our experience with cutaneous reaction includes also three cases of mild patchy chronic dermatitis, one of urticaria (a similar case was reported by Murrell in discussing Elliott's series) and two of toxic erythema. We have also observed a pityriasis rosea-like exanthem in two cases apparently following the injection of bismarsen, and have several times noted a marked exaggeration of the severity and the extent of typical dermatophytosis of the feet, hands and groins in patients receiving intensive treatment with bismarsen. Nitritoid reactions were observed in eight cases in this series. Three cases were controlled by the Besredka technic, and the remainder lapsed or were changed to other treatment. Nausea and vomiting after the drug were observed in sixteen cases. Men seem in general markedly less reactive than women (6:32).

The usefulness of the drug as a substitute in reacting patients is evidenced by the following facts: Nine patients who had nitritoid reactions to arsphenamine proper, took bismarsen without trouble; one patient had nitritoid reactions to both drugs; one had a cutaneous reaction to the bismarsen, and one who had nitritoid reactions to arsphenamine had one hemorrhagic reaction to bismarsen. Far from regarding the nitritoid crisis as a trifling reaction, we are inclined to interpret it as a warning of serious reactivity and have now twice seen it followed by hemorrhagic reaction—in one case, fatal. Five patients with postarsphenamine jaundice were able to take bismarsen without difficulty; four who had had dermatitis under treatment with arsphenamine took bismarsen without complication; and two who vomited, one who had pruritus and one who had toxic erythema after original arsphenamine had no complications when a change was made to bismarsen.

The proportion of systemic, like that of local, reaction in the original Stokes-Chambers group was almost identical with that in our subsequent cases (13 and 15 per cent, respectively).

BISMARSEN IN PRIMARY AND SECONDARY SYPHILIS

Our most interesting cases fall into the group of primary and secondary syphilis, for the lesions and the course of the disease in these stages provide better mileposts for the determination of therapeutic progress than are provided in other aspects. In the five years, sixty-nine patients with primary and secondary syphilis have been observed,

fifty in the original series and nineteen in the new group. Of these, forty-five had bismarsen exclusively. Of four seronegative primary cases, three never became seropositive, and one became seropositive after the sixth injection. Thirty-five patients had more than twenty injections of bismarsen. Examinations of the spinal fluid were allowed by sixteen patients of this group, and complete reexaminations were done in ten cases in which the Wassermann reactions of the blood at the outset had been positive and in which the patients were treated only with bismarsen. Two were reexamined after two years' duration of their infection, five after three years and three after four years.

Healing Effect.—In the opinion of all observers, bismarsen is a rather slow-acting drug. Healing of the primary lesion took place between the fifth and the thirteenth injection. Secondary lesions involuted between the second and the fifteenth injection, according to type, but in twenty-three of twenty-five cases the lesions had disappeared by the eighth injection and in sixteen cases by the fifth injection.

Spirillicidal Effect.—O'Leary and Kolmer both found the spirillicidal effect of bismarsen to be slower than in the original Stokes-Chambers series—from 70 to 100 hours as compared with from 25 to 33 hours.

Herxheimer Reaction.—The use of bismarsen is notable for a comparative absence of therapeutic shock effects. In early syphilis, though no temperature records were kept, only three of forty-five patients watched showed a visible flare-up; in all, this occurred after the first injection, and in all, it was slight.

Effect on the Wassermann Reaction.—In general, the precipitation tests (Kahn and Kline) followed the same course as the Kolmer Wassermann reaction. The time of reversal from positive to negative was not accurately ascertained, but in no case did it occur before the fifth injection on a once-a-week schedule. Of fifty patients under observation six months or longer, twelve failed to show reversal, but of these twelve, nine had had only ten or fewer injections (compare table 3). Of twenty-nine patients given twenty or more injections, only two failed of reversal; of twenty-two given thirty injections or more, two failed of reversal; of eleven given forty injections or more, none failed of reversal, though one had a relapse after six months.

The lasting quality of the Wassermann reversals is suggested by our unfortunately incomplete data. Of ten patients with primary and secondary syphilis serologically positive at the outset and treated exclusively with bismarsen, two were seronegative at the end of the second year of their infection, five at the end of the third year and three at the end of the fourth year.

Effect on the Spinal Fluid.—In the original Stokes-Chambers series, twenty-eight patients treated only with bismarsen who had had exami-

nations of the spinal fluid during from four to eighteen months' observation showed no abnormal fluids. O'Leary found four abnormal fluids in thirty cases, Kolmer found one in eleven cases. It should be pointed out that both Kolmer and O'Leary used rest intervals and shorter courses than were used in the Stokes-Chambers series, which in the light of later observation may explain their higher incidence of abnormal fluids.

Of eleven patients with primary and secondary syphilis in our reexamination group, the largest part of whose treatment had been with bismarsen, two had abnormal spinal fluids when examined in the

TABLE 3.—*Effect of Bismarsen on Wassermann Reaction of Blood in Primary and Secondary Syphilis*

Author	Type of Syphilis	Cases	Wassermann Reaction at Onset	Wassermann Reaction at Finish	Injections Producing Result	Remarks
Stokes and Chambers (1927)	I, II	42	39 positive 3 negative	All negative	14 to 20	No cases Wassermann-fast
O'Leary and Montgomery (1929)	I, II	30	24 positive 6 negative	All negative	8 to 32	Nineteeen reactions were negative after 16 injections. Seronegative primary still negative 13 or more months afterward
Elliott (1929)	I, II	21	15 positive 6 negative	All negative	20 or more	One case relapsed after 1 month's rest. After 20 more injections, reaction became negative. Another rest was followed by another relapse
Kolmer (1930)	I, II	11	7 positive 4 negative	9 negative 2 weakly positive	20 to 40	Four seronegative primary still negative after from 11 months' to 3½ years' observation. Two positive cases negative after neoarsphenamine and Bi *
Stokes Miller and Beerman	I, II	50 observed 6 mo.	46 positive 4 negative	38 negative 12 positive	3 to 40	One seronegative primary became positive after 9 injections. Nine of 12 patients with positive reactions at end of treatment, had had less than 10 injections

* Bi = potassium, tartrobismuth, etc.

second to fourth years of their infection. One of these had probably had an abnormal fluid from the start; the other definitely presented a neurorecurrence, the only one in our experience, after a previously negative reaction of the fluid and a rest period of six months. Both patients were women, and both had paretic formulas. This experience suggests that bismarsen, while effective against the less serious forms of asymptomatic neurosyphilitic involvement, is as powerless as the other arsphenamines to cope with the case that shows a distinct trend toward dementia paralytica. The neurorecurrence in this group was asymptomatic and took place after four injections of arsphenamine and eighty of bismarsen. The first examination of the spinal fluid made after the

twentieth injection of bismarsen had shown normal fluid. The patient whose abnormal spinal fluid was not recognized until after sixty-five injections of bismarsen and ten of bismuth became normal after six injections of neoarsphenamine and twenty-four of tryparsamide.

Relapse in All Types of Early Syphilis under Treatment with Bismarsen.—Of fifty patients receiving exclusively or largely treatment with bismarsen and observed for six months or more, six showed one or more forms of relapse. In interpreting these and subsequent figures, it must be recalled that not all patients had examinations of the spinal fluid. The figures therefore are absolutely valid only for blood serologic observations and for clinical relapse. There were four serorelapses, one from seronegative primary to seropositive primary after six injections of bismarsen and a lapse of two weeks from treatment; the second after four months' rest following sixty injections, a third following six months' rest after eighty injections (also a neurorecurrence) and the fourth following forty injections and two months' rest (in a patient aged 70).

The percentage of all forms of relapse in patients with early syphilis after being treated exclusively or preponderantly with bismarsen and after observation for six months or more is, therefore, 12 per cent, which compares with 16.6 per cent in O'Leary's series of thirty cases. Kolmer observed neither clinical nor serologic relapse in eleven cases observed from eleven months to three and a half years. Elliott observed one relapse in twenty-one cases; the period of observation was not stated.

While the period of observation of these groups is still too short for conclusions, the figures for relapse from European and American clinics under various treatment régimes, some of them intensive, such as those of Scholtz, Moore and Keidel and the Mayo Clinic, are all notably higher than those for relapse under bismarsen. Figures for relapse of seropositive primary syphilis include such as from 23 to 40 per cent after from twenty-one to forty injections of arsphenamine and mercury in seropositive primary and secondary syphilis (Moore and Kemp[9]); from 25 to 35 per cent in the same types (Stokes and Becker[10]); from 21 to 23 per cent in seronegative and seropositive primary syphilis under neoarsphenamine (Bruns[11]-Riecke); from 1.3 to 10 per cent in seronegative primary, and from 15 to 20 per cent in florid secondary, syph-

9. Moore, J. E., and Kemp, J. E.: Treatment of Early Syphilis: Clinical Results in 402 Patients, Bull. Johns Hopkins Hosp. **39**:16 (July) 1926.

10. Becker, S. W., quoted in Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1926, pp. 549-550.

11. Bruns, A.: Prospects of Cure with Early Syphilis, Dermat. Wchnschr. **78**:661 (June 14) 1924.

ilis under the Scholtz technic. If, then, bismarsen is able to maintain its present promise, it will outrank all other drugs at present employed in the treatment of patients with early syphilis, under the systems now in vogue.

Progression of Cardiovascular Syphilis under Treatment for Early Syphilis.—For premature enthusiasms, the observation of the cardiovascular mechanism under modern treatment is one of the best antidotes. Of thirteen patients with early syphilis in our series, treated since their primary or secondary stage, three are now under suspicion of having early cardiovascular syphilis three years after the onset of their infections. The ground for suspicion is still too tenuous for conclusions. One has begun to have an apical systolic murmur, not transmitted, and aortic second sound unaffected, with normal blood pressure; the second has begun to have a systolic murmur at the apex with accentuation of the aortic second sound and no change in blood pressure; in the third case, in a rest period, a murmur over the base developed, which was interpreted as functional, but which disappeared under further treatment, leaving a distinctly roughened aortic second sound, with blood pressure normal. It is of course impossible to base any conclusions on such evidence. There was no cardiac enlargement in any of the cases.

The Effect of Rest Intervals and Lapse on the Results of Treatment.—In fifty-four of our early cases there are data on rest intervals and lapses in treatment. In this group, thirty-two patients had absolutely continuous treatment, though at times abbreviated, and twenty-one had rests or lapses. The numbers are small for conclusions, yet the proportion of relapse in the continuously treated cases was 9.1 per cent and in the rest cases 14.3 per cent. This difference of nearly one-third becomes more interesting when it is noted that 60 per cent of the continuously treated patients had comparatively little treatment (twenty injections or less), while 86 per cent of the intermittently treated ones had comparatively heavy courses of twenty-one injections or more (40 per cent had over forty injections). As with the previously noted greater incidence of neurosyphilis in the intermittently treated series of O'Leary and Kolmer, so here it appears that a smaller amount of treatment, continuously applied, yields fewer relapses of all kinds than a larger amount with rest periods or lapses. In the matter of rest periods, twelve of the twenty-one patients had four weeks' rest or less, and the remainder had rest periods of various length up to eight months.

While the foregoing generalization is in keeping with a growing experience, it is proper, too, to emphasize that in some cases syphilis may be extinguished or arrested by a small amount of treatment given early. On the other hand, as in our two neurosyphilitic cases, the

futility of an arsphenamine combined treatment, no matter how prolonged, in the patient who has a definite trend toward resistant neurosyphilis (paretic formula) is equally apparent. In our series, the view that the patient had prolonged treatment simply as a consequence of his presenting evidence of unusual resistance, does not seem to apply.

The interval between injections seems to appear also as a possible factor in the percentage of relapse. Of the patients without rest periods, who had only 9.1 per cent relapse, 39 per cent had two injections in a week, while in the group with 14.3 per cent relapse, less than half as many (16.8 per cent) had the advantage of two injections a week. Again the figures are small, but they certainly suggest, it seems to us, that shorter intervals between injections and no rest periods, even with shorter courses, are more effective than longer intervals with rests even in more prolonged treatment.

BISMARSEN IN LATENT AND WASSERMANN-FAST SYPHILIS

Syphilitic latency in our series is defined as the presence on first examination of a positive Wassermann reaction of the blood or a positive result in the precipitation tests or a definite history of previous infection with treatment, with, in either case, negative physical evidences. Under this definition, there were 110 patients, 40 of whom had been treated with bismarsen alone. Changes in blood serology, clinical progression of the disease and tonic effects are the only measures of the effect of therapy.

Of fifty-seven patients with latent syphilis who gave positive reactions in blood serologic tests at the start, seventeen were treated exclusively with bismarsen and in 41 per cent of these the serologic reaction underwent a reversal to negative. Of those who had had extended treatment with other drugs, as well as with bismarsen, the latter being used to complete the treatment in an effort to secure a negative reaction, practically the same proportion became serologically negative (40 per cent). It would appear then that with allowance for the small number in the group, bismarsen alone was as effective in securing reversal as was combination or mixed treatment.

In interpreting results in Wassermann-fast latent syphilis, those cases, fifteen in number, were accepted as Wassermann-resistant in which twelve or more intravenous injections of arsphenamine (606) and the equivalent of ninety mercurial inunctions or twenty-four injections of bismuth had been given. In this group, seven, or 47 per cent of the positive reactions were reversed to negative, and eight were not. The standard of Wassermann resistance was more exacting in the original Stokes-Chambers series, which included all types of Wassermann-fast cases; of fifteen positive reactions in this group, six were reversed. In

the present latent group, the seven reversals were secured by amounts of treatment ranging from seventeen to forty-one injections of bismarsen, four of them requiring forty injections. In the eight cases in which the reactions failed to reverse, the patients received from twenty to forty injections; three received forty injections.

In other types of syphilis, including cardiovascular syphilis, neurosyphilis and prenatal syphilis, the percentages of reversal secured approximated 50 per cent in the two former, and none in the latter (five cases only). The fact that in some cases the serologic result seems independent of the number of treatments with bismarsen suggests that it is more the change of drug than the number of injections that produces the desired but unpredictable result. If serologic reversal takes place at all, it occurs relatively early after bismarsen is begun, rather than after a long series of injections. Our results lie midway between those of O'Leary and Elliott, which were unsatisfactory, and those of Kolmer, who speaks of the drug in this capacity almost with enthusiasm.

Tonic effects were marked in the latent group. With data on twenty-four cases, 79 per cent showed from good to excellent gains in general health, weight, etc.

The reexamination of twenty-six patients with latent syphilis who were under observation for from two to five years failed to disclose any form of clinical relapse or progression of the disease. The cardiovascular systems remained negative. No statement can be made regarding asymptomatic neurosyphilis on account of the small number of spinal fluids examined.

BISMARSEN IN CARDIOVASCULAR SYPHILIS

The series of cardiovascular syphilis includes forty cases, with sixteen reexaminations. The various clinical types include: early aortitis, twenty cases; aortic regurgitation, nine cases; aneurysm, seven cases; myocarditis five cases, and miscellaneous conditions, six cases. Since no case of coronary sclerosis appears, we are unable to judge satisfactorily of the effect of bismarsen on this type or indeed on myocarditis, in which the question of therapeutic paradox is paramount. There were four decompensated patients in the series.

Wassermann reversal took place under bismarsen treatment alone in seven of twelve cases, there being no change in five, even after as many as seventy-one and eighty injections. Six additional cases were seronegative at the start.

Wassermann reversals were secured in five of sixteen cases in which mixed treatment with bismarsen, arsphenamine, mercury and bismuth was employed. In ten there was no change, and in one the Wassermann

reaction was negative at the start. It thus appears that the serologic results with bismarsen alone were distinctly better than with a mixture of various forms of treatment (58 per cent versus 33 per cent). From thirty to sixty injections of bismarsen were required for the reversals, when the drug was used alone.

Data on the outcome of treatment were available in twenty-two of the forty cases. Good results were obtained in thirteen, fair in one and poor in one; in two death occurred from other causes, and in five the outcome was indeterminate. The thirteen good results represented nineteen treatments or over. The reexamination group of cardiovascular cases included fourteen in which good results could be analyzed. Seven cases were observed for two years, and seven for three years. In this period, early marked improvement (grades 3 and 4 on a scale of 1, 2, 3, 4) was made by 71.4 per cent of the patients, and 64.2 per cent held the grade made at the outset. This is indeed a gratifying result that goes far to relieve the anxiety always felt as to the therapeutic paradox and ultimate unfavorable outcome in the syphilitic cardiovascular case under modern overintensive methods. None the less, it must be recalled that our material consists largely of cases in which favorable results might be expected and includes none of the really desperate cases of advanced coronary and myocardial disease.

Analysis of individual symptom response was made separately for fourteen patients who received bismarsen only and for fifteen who received mixed treatment including some bismarsen. The results were nearly the same in the two groups. Practically 100 per cent were relieved of pain; from 50 to 75 per cent, of dyspnea; from 65 to 100 per cent, of cough; practically 100 per cent, of edema, and nearly all, of palpitation. Two who were incapacitated were able to return to work.

Progression of physical manifestations may be interpreted as evidence either of advance or, paradoxically speaking, of healing with accentuation of signs. Of sixteen patients completely examined before and after treatment, four showed this paradoxic development of an aortic murmur, though none was present at the outset. One showed definite increase in the intensity and harshness of his murmur (improved function?), and the remainder showed no change.

It appears, therefore, that bismarsen may be rated as both a safe and an effective drug in the treatment of patients with the aortic types of vascular syphilis, and when used alone is the equal of various combinations of mercury, iodide and bismarsen. So far as our results indicate, then, bismarsen alone is sufficient and requires no adjuncts. The tonic effect of bismarsen in these patients is often striking. Attention should be called to the dosage system, which begins with 0.05 Gm. and

rapidly reaches from 0.1 to 0.2 Gm. once or even twice a week. This is the full dose for the average healthy adult, and is the best possible evidence of the lack of disturbing effect combined with good therapeutic results that seems to characterize the new drug to a marked degree.

BISMARSEN IN PRENATAL SYPHILIS

Our group of forty cases of prenatal syphilis has little value for the purposes of study, for they are largely the equivalent of cases of latent acquired syphilis, with no active symptoms by which to measure improvement. The slowness of action of the drug was suggested by the long courses required to clear up a chronic interstitial keratitis, both in our patients and in Kolmer's. Since conservation of the cornea is vital in these cases, we recommend arsphenamine and a soluble mercurial salt and iodide, followed by arsphenamine and bismuth, as probably superior to bismarsen in acute interstitial keratitis, to secure a rapid control of the process. The Wassermann reaction of the blood in prenatal syphilis is highly resistant to bismarsen; in fourteen cases in which the treatment was exclusively with bismarsen, seven positive reactions were reversed to negative and seven failed to be reversed, one after eighty-eight injections. Five cases in which the Wassermann reactions on the score of previous treatment were ranked as fixed positive, yielded no reversals to bismarsen. No other author offers any data on serologic response in prenatal cases. Eleven reexaminations in this group showed no relapse or progression of the disease.

BISMARSEN IN CUTANEOUS AND OSSEOUS GUMMA

The group includes thirty-five cases: twenty of cutaneous gumma, seven of mucosal gumma, four of osseous late lesions and one of rectal gumma. The original observations of Stokes and Chambers on the comparative slowness of involution of late cutaneous syphilids, comparable to that of the chancre or of similar lesions under bismuth alone, is confirmed by Kolmer and supported by our present experience. In fact, if rapid healing is desired, other arsphenamines give much quicker results and should be preferred at the outset.

BISMARSEN IN NEUROSYPHILIS

The apparent value of bismarsen therapy in early syphilis for the prevention and control of all but preparetic neurosyphilitic involvement has been emphasized. In the therapy of late neurosyphilis, our results are obscured by the fact that few of our patients received bismarsen alone. Of a total of forty-seven patients, twenty-nine with symptoms and eighteen without, nine had less than ten injections and thirty-four had from twenty to ninety injections. Of thirty-two on whom com-

plete data were obtained, twelve had tabes, three taboparesis, four dementia paralytica, six meningeal neurosyphilis, three vascular neurosyphilis and four asymptomatic neurosyphilis.

Serologic results in the blood in neurosyphilis are exemplified by thirty-two cases with positive Wassermann reactions of the blood, of which sixteen were reversed to negative and sixteen were not. Nine of the sixteen were reversed before the fortieth injection.

Serologic results in the spinal fluid are illustrated by thirteen cases with full information on observations before and after treatment. In these cases, eight abnormal spinal fluids were rendered normal in from six to sixty-seven treatments with bismarsen, in most cases more than forty treatments. Five abnormal spinal fluids could not be rendered normal in from twenty to forty-six treatments. Reduction of a spinal fluid to normal, in these figures, means the rendering of the reaction in all four tests, and not merely in the Wassermann, negative. In our experience, the reversal of the reaction of the spinal fluid occurs in a slightly greater proportion of cases than that of the blood, though Tobias notes the opposite, believing the blood the more responsive. The definite inferiority of treatment with bismarsen to that with tryparsamide was demonstrated in one patient who received sixty-seven injections of bismarsen alone in four years without reversal. This patient's spinal fluid was reduced to normal by nine injections of neoarsphenamine and eleven of tryparsamide. Another patient, one with early syphilis with neurorecurrence after sixty injections of bismarsen, had the spinal fluid reduced to normal by six injections of neoarsphenamine and twenty-four of tryparsamide. This is, of course, not an entirely fair comparison.

The symptomatic response of neurosyphilis to treatment with bismarsen was estimated on the basis of twenty-four cases. Eleven of twelve tabetic patients improved from zero to a grade 2 or 3 on a scale of 1, 2, 3, 4; eight of them in from twenty to twenty-four treatments. Patients with dementia paralytica and taboparesis showed no improvement, and four of six meningeal patients showed an improvement similar to that of the patients with tabes on about half as much treatment.

In the matter of individual symptoms, five patients with headaches were benefited. In two the headaches disappeared entirely, and three were improved to grade 3. Three of five patients with shooting pains had an improvement of grade 3 or over. Two had little or no improvement in spite of from forty to sixty injections. The pain of rectal and gastric crises, one case each, was largely relieved, but the rectal crises recurred in a year. Dizziness and facial palsy did not improve in one patient given twenty-nine injections. Two patients sustained marked

general tonic effect, and one showed improvement of vision and gait. No primary optic atrophy was treated.

In twenty-four reexaminations of neurosyphilitic patients observed for from two to four years, there was no evidence of symptomatic progression or advance of physical evidences.

Tobias, in treating patients with tabes, noted beneficial effects about two weeks after the beginning of treatment, with favorable response of lightning pains, less response of ataxia and no response of optic atrophy. Kolmer noted especially the effect on meningeal headache. We are in accord with both of these observers on all these points.

CONCLUSIONS

1. Bismuth arsphenamine sulphonate (bismarsen) is a highly rational, relatively nontoxic and easily administered drug for the treatment of patients with syphilis.

2. Local reaction to intramuscular injection (the only route) occurs following 2 per cent of injections as stiffness and moderate pain, most marked on the second or third day. Prolonged massage, in addition to a good technic, and hot applications control all but 8.2 per cent of these reactions.

3. Systemic reactions occur following 0.5 per cent of injections, or in 11 per cent of patients, and include nitritoid crises, mild gastrointestinal reactions and cutaneous reactions.

4. The occurrence of aleukemia hemorrhagica, 1 case in at least 11,000 injections reported, is noted.

5. The incidence of primary exfoliative dermatitis is 1 case in 5,500 injections—about that of neoarsphenamine and less than that of other arsphenamines.

6. Three cases of jaundice have thus far been reported, and no cerebral accidents.

7. The drug is a valuable substitute for other arsphenamines in many reactive patients.

8. Spirillicidal and healing action, though slower than that of other arsphenamines, does not apparently militate against an ultimate arresting or "curative" effect in early syphilis equal and even superior to that of other standard arsphenamines combined with bismuth or mercury.

9. Herxheimer effects are comparatively insignificant or absent.

10. The effect on the Wassermann reaction in early syphilis is excellent and lasting.

11. In early syphilis, only two of thirteen patients reexamined within from two to four years had abnormal spinal fluids (both preparetic types). One of them presented a neurorecurrence.

12. The proportion of all forms of relapse was 12 per cent in early syphilis, as compared with from 20 to 40 per cent in a carefully studied series treated with other drugs and modern systems. More time is required for final judgment, however.

13. There was a suggestion that cardiovascular syphilis may progress under cover of bismarsen treatment in early syphilis, as with other drugs and systems.

14. There is evidence that intermittent, is less effective than continuous, treatment with this drug, and that a smaller amount continuously applied yields fewer relapses of all kinds than a larger amount in courses with rest periods. Small amounts may "cure" some, while large amounts fail to influence others.

15. Two injections a week are preferable in early syphilis.

16. Bismarsen reduces from 40 to 50 per cent of resistant positive Wassermann reactions of the blood to negative in various phases of the disease, including Wassermann-fast latency.

17. Marked tonic effects are secured by treatment with bismarsen.

18. In cardiovascular syphilis, bismarsen secured a good final result in thirteen of twenty-two cases. The cases, however, included little myocardial and no apparent coronary disease. The number showing late improvement, 67 per cent (two to three years), is nearly equal to the number showing early improvement, 74 per cent, an argument against therapeutic paradox.

19. Cardiovascular symptomatic relief secured by bismarsen alone is equal to that secured by the drug plus iodide and mercury. The latter seem, therefore, to be unnecessary.

20. Paradoxic accentuation of aortic murmur under treatment was observed (sign of healing?).

21. In prenatal syphilis, the action of the drug, while not fully appraised, seems disappointing. Its slowness of action leads us not to recommend the drug in acute interstitial keratitis. Its tonic effects are valuable.

22. In cutaneous, mucosal and osseous gumma, bismarsen is slower than other arsphenamines and is not recommended, except as continuation treatment.

23. About 50 per cent of patients with neurosyphilis (nonparetic formulas only) had blood and spinal fluid reduced to normal by mixed forms of standard treatment, preponderantly bismarsen.

24. Bismarsen has relatively little influence on the paretic formula in the spinal fluid and in this respect is no substitute for tryparsamide.

25. Fair to good symptomatic improvement in meningeal headache and lightning pains (grade 2 or 3 on a scale of 1, 2, 3, 4) can be

secured with bismarsen in most tabetic patients. Symptomatic progression in spite of treatment has not occurred in our series thus far. Optic atrophy is reported as not benefited.

26. It would appear, then, from this and other studies that the field of greatest promise for bismarsen is that of early syphilis. In this field, we commend its use in continuous treatment, without rest intervals, two injections per week, to as near forty injections as possible. Attention to technical detail, while it need not be excessive, facilitates the use of the drug in this way. Massage and hot applications are items of importance and should not be regarded as beneath the therapist's notice. The relative simplicity of administration, the comparative rarity of complications, the low proportion of relapse in the most significant phase of the disease, from the standpoint of both the individual and the public health, all seem to point to bismuth arsphenamine sulphonate as a practitioner's advance in the control of syphilis.

ABSTRACT OF DISCUSSION

Dr. George W. Raiziss, Philadelphia: In chemotherapeutic work there are three phases of fundamental research that must be systematically considered. The first is chemical synthesis, the second a biologic investigation of chemical compounds and the third, a systematic clinical study. Characterized by completeness and thorough knowledge of the subject, the work of Dr. Stokes and his associates should serve as a model for similar clinical chemotherapeutic investigations. Chemotherapeutists are greatly in need of such clinical cooperation.

From what I gather from this paper, other publications on the subject and the clinical reports which came to me personally, bismarsen has two outstanding features.

In comparison with other derivatives of arsphenamine, bismarsen has shown a minimum of fatalities and dangerous reactions, even when a large number of injections has been employed.

The other outstanding clinical property of bismarsen is that in most of the cases the Wassermann reaction in primary and secondary syphilis can be reversed, and in a very large number it remains negative in the blood and spinal fluid. Clinical and serologic relapses, according to the preceding paper, were 12 per cent in early syphilis as compared to from 20 to 40 per cent with other drugs or methods of treatment. The effect of bismarsen in Wassermann-resistant cases is also exceedingly satisfactory. Treatment with bismarsen of patients with cardiovascular syphilis is safe and gives a good therapeutic effect.

It is of utmost importance to give at least two doses of bismarsen weekly in order to obtain the best clinical and serologic effect. An interesting point made by Dr. Stokes is that preference be given to uninterrupted treatment with bismarsen, two doses a week being given. Such intensive treatment for a certain period of time will give better results than prolonged treatment with interruptions and only one dose a week.

Complete safety in the employment of this drug is possible only when care is exercised to avoid situations that may cause reactions. This has been well pointed out by the previous speaker. Local pain is, of course, a drawback, but

if care and perfect technic are employed, it can be avoided. One must bear in mind that most of the intramuscular administrations of active therapeutic agents cause more or less pain.

This preparation was selected by us among many other products tested in our early research, because its high spirillicidal value attracted our attention.

In our studies of the effect of bismarsen on syphilis experimentally produced in rabbits, we not only observed the disappearance of spirochetes and the healing of lesions in animals treated with this drug, but transferred their popliteal nodes six months after they were entirely well to normal rabbits, which were also observed for six months. We found that a single dose of from 10 to 15 mg. per kilogram of weight resulted in complete sterilization of the animals. Repeated small doses, such as 5 mg. per kilogram given weekly or biweekly proved to be curative in the majority of animals. Ten weekly treatments of 10 mg. per kilogram sterilized syphilitic rabbits in 100 per cent of cases. These results compare favorably with those obtained with arsphenamine and are superior to those with neoarsphenamine.

DR. PAUL A. O'LEARY, Rochester, Minn.: My experience with bismarsen consists of approximately 5,000 injections given to 310 patients. I have restricted the use of the drug to patients with acute syphilis, cardiovascular syphilis and a few of the so-called Wassermann-fast group. Ninety patients with acute syphilis were treated, and we have recently had the opportunity to observe 30 of these patients who have been on observation now for between two and three years. These patients had received as a minimum 40 injections of bismarsen, 0.2 Gm., every fourth day for 10 injections. Rest periods varying from one week to a month were permitted between the courses. Several of these patients received 60 injections of the drug, and they were all serologically negative when placed on "observation." In a recent appraisal of the status of these 30 cases, 9 were found to have developed serious involvement of the central nervous system, during this two to three year observation period, as evidenced by strongly positive spinal fluids with pleocytosis varying from 50 to over 3,000 lymphocytes. The patients whose spinal fluids were persistently positive during treatment were not included in this group, because when the spinal fluid serology failed to respond satisfactorily to bismarsen therapy, they were placed on other forms of treatment.

Thus far the results in the cardiovascular group compare favorably with the results from the other therapeutic systems we have employed. However, in the Wassermann-fast group no noteworthy serologic reversals have as yet been observed.

Bismarsen seems well adapted to the treatment of patients past middle life with acute syphilis. The absence of complications and the therapeutic results indicate its use for patients for whom intensive therapeutic measures are not warranted.

In the twenty-one patients who have thus far apparently obtained a "cure," the course of treatment has been economical, not time-consuming and free from technical difficulties and toxic reactions. Contrary to the experience of many of those who have abandoned the drug because of the pain following the injection, I have had but two cases in which it was necessary to discontinue the drug.

As a result of the high percentage of neurorelapse, I cannot subscribe to the idea that bismarsen is a satisfactory drug for the treatment of patients with acute syphilis. In cases in which intensive therapy is not indicated and in which the economic problem is of prominence, bismarsen is of value.

DR. THOMAS H. MILLER, Philadelphia: I wish to stress the point that our results in early syphilis are not to be compared with Dr. O'Leary's in which bismarsen was given in short courses, with rest intervals, and also that the difficulty of local reaction need not discourage the use of the drug in these cases. In only 10 of 101 local reactions was the treatment changed. The rest were controlled easily with massage and hot applications.

The method of injection is important, and a safe technic is essential. The technic we used is the technic of Stokes, the injection being given into the upper outer quadrant of the buttock, and deposited intramuscularly.

LOCAL MEDICATION IN DISEASES OF THE SKIN

INDICATIONS, ACTIONS AND USES OF THE VARIOUS ACTIVE INGREDIENTS AND VEHICLES *

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In spite of the remarkable progress made in the treatment of diseases of the skin by means of physical agents and the equally important advances made in the use of systemic treatment to combat the various factors at play in the causation of many dermatoses, it is still important to remember the needs and desires of the patient for some pharmaceutic application to allay or cure his cutaneous disorder. Aside from this, the local signs and the symptoms of a disease of the skin are more materially benefited if, in addition to other measures, well directed local medicinal therapy is applied.

In local traumatic and parasitic diseases of the skin, local applications assume the order of first importance, for reasons that are obvious.

The drugs employed for the local treatment of diseases of the skin are numerous. New ones are being added from time to time as the new drugs appear, or from modifications and refinements of older remedies. It is to be regretted that many proprietary preparations are continually being prescribed for their vaunted superiority, to the neglect of many pharmacopeial preparations that have been tried and found just as effective, if not more so.

It is not necessary to have at one's command an absolute and complete knowledge of every conceivable preparation used in the treatment of diseases of the skin, any more than this is necessary in other branches of medicine. What should be acquired is an intimate acquaintance with the indications, contraindications, method of application and pharmaceutic forms of the important group of drugs advocated by experienced observers as being helpful or curative. Newer preparations are to be applied only when the older ones are found lacking, and then they should be sponsored by a body like the Council of Pharmacy and Chemistry of the American Medical Association that has the organization for

* Submitted for publication, July 7, 1930.

* Comprising the lectures delivered during the spring semester of 1930 to members of the staff and matriculants in the Department of Dermatology of the New York Post-Graduate Medical School and Hospital.

* These lectures were illustrated by various pharmacopeial preparations prepared by J. Leon Lascoff, Phar.D., New York.

carrying out searching, detailed and unbiased investigations, both clinical and experimental.

The formulas listed in any of the standard textbooks on diseases of the skin may be used as a working nucleus. These may be further amplified by those found in the "National Formulary" or the more recent "Pharmaceutical Recipe Book" published by the American Pharmaceutical Association. The yearly manuals of "New and Nonofficial Remedies," and the work of Bernard Fantus on "The Technic of Medication" issued under the auspices of the American Medical Association, are excellent guides to broaden one's medical resourcefulness suitably.

It is necessary to emphasize certain details of importance in order to obtain the maximum effects from a prescribed substance. The patient should be told in clear and simple language the form of medication he is receiving, what he is to do with it, and how much and how often he is to use it. The material ordered should be fresh, and a sufficient amount should be prescribed for the actual needs of the patient. For a single application of an ointment to the entire body, about 25 Gm. is necessary. More is required for a paste, and still more (in volume) if a lotion is to be used. The total amount prescribed is dependent on the size of the part to be treated and the frequency of application. All crusts, débris and previous applications should be cleaned off carefully by the patient before applying the treatment anew.

Some drug stores are not willing, or the personnel is not able, to compound any but the simplest of formulas for diseases of the skin. To be sure that the patient is receiving what is prescribed, the cooperation of a reliable pharmacist is of the utmost importance. Typewritten instructions to the pharmacist given with the prescription are helpful. It is also good practice to have the patient bring his medicines with him at the next visit to insure further the necessary accuracy in compounding.

PHARMACEUTIC FORMS OF TOPICAL APPLICATIONS

Solutions.—One of the forms of topical applications consists of water and watery solutions (baths, douches, sprays, lotions or washes and moist occlusive dressings), and alcoholic, ethereal solutions (ether, acetone and chloroform), benzine, carbon disulphide and carbon tetrachloride. The nonwatery compounds are solvents of fatty bodies and favor penetration of the active ingredient down to the active layers of the epidermis. The use of the fatty solvents is restricted on account of their irritating action, while the watery solutions are commonly used as cooling agents, and by the maceration of the skin favor increased absorption.

Powders.—Powders act as cooling and drying agents by increasing the surface of evaporation, thus relieving congestion. Some are of

mineral origin (talc, zinc oxide, the carbonates of zinc, calcium, magnesium or bismuth; bismuth subnitrate, kaolin, etc.), and others are of vegetable origin (the various starches and flours, lycopodium, etc.). Prepared calamine, according to Rusby, is a powder containing 98 per cent zinc oxide with small amounts of silica and zinc carbonate, stained pink with ferric chloride. In the fifth edition of the "National Formulary" it is stated that the compound is zinc oxide containing a small amount of ferric oxide and silica.

Watery Pastes.—Equal parts of powder and dilute glycerin are used in mixing watery pastes. The glycerin is hygroscopic and mixes easily with water. The glycerite of starch may be mixed with very active remedies and is easily removed by washing. Equal parts of zinc oxide, talc, 30 per cent glycerin and water is an example of a popular watery paste. Either calcium carbonate (prepared chalk) or starch may be substituted for the talc. Lime water, rose or witch hazel water, boric acid solution or aluminum acetate (1:10) may be incorporated. If desired, sulphonated bitumen, precipitated sulphur or coal tar emulsion may be added, provided the proportion of glycerin and powder remains the same. Acacia (from 0.5 to 1 per cent) makes the paste more adherent. Alcohol (from 5 to 10 parts) renders the paste more drying.

Fatty Bodies.—The use of fatty and oily substances forms an important part of dermal therapeutics, because they are excellent vehicles for more active ingredients that can be applied to large areas with more lasting effects. Fats applied to the skin cause the horny cells to swell, the scales to become detached and the skin to soften. The fatty substances not only adhere to the skin, but even penetrate it.

The fats of animal and vegetable origin in common use are lard and benzoinated lard, cocoa butter, spermaceti, yellow wax, expressed oil of almond, olive oil, linseed oil, castor oil and cod liver oil. The purified wool fat is official as anhydrous wool fat. When mixed with 25 per cent of water it is called hydrous wool fat, the basic vehicle of many creams. The paraffins and the yellow and white petrolatum belong to the hydrocarbons. Various fatty bodies may be combined to vary their consistency and active ingredients may be added, thereby forming the familiar salves. By incorporating any one or more of the powders in a salve, a paste is formed.

Salves prevent the evaporation of secretion and cutaneous perspiration and thereby acquire a congestive or heating action. The porosity of pastes and the watery content of the creams make them act as cooling and softening agents. Creams, however, do not serve well for active treatment. Liniments are mixtures of oil and water, or an oily menstrum. Emulsions are liniments with a powdery suspension.

Soaps are excellent cleansing agents. They are combinations of the fatty acids, stearic, palmitic and oleic, with sodium or potassium hydroxide. Potash soaps are soft, and the soda soaps are hard. The best soap should be superfatted or neutral, and this may be accomplished by adding 2 parts of soda to 1 part of potash and 1 part of olive oil for 8 parts of fat to be saponified. Soapy salves are also useful as cleansing agents.

Plasters, Varnishes and Gelatin-Zinc Pastes.—Many active ingredients may be incorporated in plasters. These usually contain a little caoutchouc and yellow wax in a petrolatum or anhydrous wool fat base.

Pyroxylin in ether and alcohol (collodion), collodion with castor oil (flexible collodion), or gutta-percha in chloroform are adherent vehicles or varnishes used in therapy for skin disorders to carry active ingredients, but for special purposes only. All these preparations adhere strongly to the skin and confine the action of the remedy to a definite area of comparatively small size. Sulphonated bitumen, coal tar, balsam of peru, or tincture of benzoin, pure or diluted with a solvent, leave a protective medicinal coating or varnish when dried. They are quite stimulating and may cause irritation.

A gelatin-zinc paste contains in addition to the zinc oxide and gelatin, also glycerin and water, all mixed in definite proportions. Other more active substances may be added if needed. It is a protective and permeable dressing that is cooling and antipruritic. It is an excellent dressing for a varicose ulcer or dermatitis of the leg.

Warmed and medicated paraffin may be applied to burns of extensive areas, herpes zoster, etc.; it is then covered with a thin film of cotton. It also forms an excellent protective but impermeable dressing, as it solidifies on cooling.

CHOICE OF REMEDY

It is important to remember that the choice of a remedy in ambulatory patients should be modified by expediency, the most suitable method being used, while the patient is at rest and the most convenient while the patient is occupied.

When the dermatitis is very acute, i.e., when the skin is red, swollen or weeping (acute erythema and acute dermatitis), soothing applications, like baths, lotions, wet dressings, sprays, etc., are indicated. If a moist dressing is not tolerated, some dry powder may be used instead. Some persons will tolerate only an application of plain lard or an olive oil-lime water liniment. When the skin is only moderately inflamed, as in a mild papular dermatitis or during the quiescent stage of an infantile eczema, recourse is had to the pastes, creams or watery pastes. If more energetic action is required, as in chronic eczematized tinea,

an ointment may be used or even a plaster. If the itching is intense, one can use an aqueous or alcoholic solution, wash or powdery lotion, to which are added either boric acid, phenol, resorcinol, salicylic acid, acetic acid, dilute hydrocyanic acid, or menthol, camphor water, chloral hydrate, betanaphthol, or some of the tars like the oil of pine or oil of birch. Several of these antipruritic agents may be combined, but it is not advisable to use salicylic acid, resorcinol or those of alcoholic content when any open lesions are present. In the latter instance, "the zinc paste" of the National Formulary (without the salicylic acid) or the glycerite of starch is preferable. When the skin is dry and not so irritable, as in the lichenifications, an ointment containing an active reducing agent like tar is usually found to be effective.

This brings one to a classification of the various active ingredients used in the external treatment of diseases of the skin, on the basis of their remedial action on the skin.

THERAPEUTIC CLASSIFICATION

The 1928 edition of Darier's textbook on diseases of the skin gives the following therapeutic classification of topical medicinal remedies. I have modified it to a slight extent (those in parenthesis).

1. Preliminary care; cleansing or (detergent) and soothing (antiphlogistic) agents
2. Cicatrizing, antiseptic and (astringent) agents
3. Desquamating and keratolytic agents (including depilatories)
4. Reducing agents
5. Stimulants and rubifacients
6. Antipruritics and local anesthetics
7. Antiparasitics
8. Bleaching agents (and stains)
9. Caustics (and sclerosing agents)

The value of Darier's classification, as he himself states, is more apparent than real, for the reasons that the specific action of the remedy varies with the concentration, duration of application, its pharmaceutic form and the vehicle in which it is used. The variation in the response of different persons and the difference between human and animal skins do not lend themselves to accurate experimental interpretation of the selective action of a topical remedy, except in an instance like the carcinogenic action of the tars and crude oils. Besides it has been recently questioned whether the beneficial action of a local remedy is entirely due to the active ingredient. Hoffmann has found that certain biologic products may be liberated in the skin by massage, irritation, etc., and that this in itself is of some aid in the cure (esophylaxis). In

actual practice, depending on the nature of the disease of the skin, in addition to local medication, every available agency is called on for help, whether it is dietary, biologic, endocrinal, chemotherapeutic, physiotherapeutic or psychotherapeutic. When radium or roentgen therapy is used for diseases of the skin, only the mildest of local remedies are applied, as it is well known that irritants exaggerate the effects of these agents.

CLEANSING, DETERGENT AND SOOTHING (ANTIPHLOGISTIC) AGENTS

Baths.—Water is as necessary in local therapy for diseases of the skin as it is for the local hygiene of the skin. The average tub bath has a capacity of 30 gallons, or 120 liters. The addition of from 1 to 2 pounds (0.5 to 0.9 Kg.) of bran or prepared starch (linit) or 1 teacupful of sodium bicarbonate with 2 cupfuls of oatmeal gruel (colloidal bath of Stokes) to the water renders it an excellent soothing and cleansing agent. (The bran or the sodium bicarbonate-oatmeal gruel is put in a thin muslin bag and washed or expressed in the water.) Gelatin (from 250 to 500 Gm.) may also be used. Pemphigus, Duhring's disease, pityriasis rubra, lichen planus and other generalized itchy dermatoses are favorably influenced with this form of treatment. Antiseptic and other ingredients like potassium permanganate (from 5 to 10 Gm.), the various tars (50 Gm.), sulphonate bitumen (250 Gm.) and sulphur, etc., may be used in the generalized seborrheids, psoriasis, pyoderma and scabies. As a rule, the baths are given tepid (34 C.), and the patient is immersed for about from fifteen to twenty minutes. Continuous or prolonged baths, as first suggested by Hebra, require a special apparatus and are in use abroad, especially for pemphigus, with considerable comfort to the patient. It is necessary to observe the skin to see if the short or prolonged bath causes any new lesions to appear. In the acute eczemas, pyodermas, etc., it occasionally happens that the lesions of the skin are aggravated. The addition of from 20 to 200 Gm. of zinc sulphate or 1 liter of vinegar to a tub of warm water serves as an excellent antipruritic and mild antiseptic agent. Mud baths and the natural medicinal baths at the various spas are also found to be helpful in certain disorders of the skin.

Wet Dressings.—The wet dressings employed for the acute inflammatory dermatoses, like dermatitis venenata, burns and the acute types of dermatophytosis, are in reality nothing but a local occlusive bath. The parts are kept moist with a physiologic solution of sodium chloride, boric acid solution or boric acid 1.2 Gm., salicylic acid 0.2 Gm. in 100 cc. of distilled water (Thiersch's solution) or a (1:8) solution of aluminum acetate, etc. This is usually applied with a few layers of gauze over which is placed fine gutta-percha or oil silk and then a gauze bandage.

They are renewed as required. These wet compresses are applied when cool. The application of from 90 to 95 per cent alcohol in the form of wet compresses for the acute eczemas, furunculosis and lymphangitis, which has always had a beneficial effect, has undeservedly fallen into disuse.

Lotions.—The lotions or washes differ from the wet dressings in the method of application. The former are bathed or dabbed on gently, as the dermatoses for which they are indicated are those that are oozing, very irritable and sensitive (such as the acute dermatitides, acute erythemas and acute eczemas). Lotions are usually medicated and therefore vary in composition and action. The plain cleansing lotions may be only a physiologic solution of sodium chloride or a decoction of matricaria, and are usually applied while hot. Others may be antipruritic, as the 1 per cent solution of liquefied phenol or resorcinol lotion. Still others possess antiseptic and astringent qualities, like a solution of neutral aluminum acetate and the water of Alibour.

Water of Alibour (French Codex, 1926)

	Gm.	or Cc.
Cupric sulphate		1
Zinc sulphate		4
Tincture of saffron		1
Spirit of camphor	1	
Distilled water	100	

Shake and filter after letting stand for twenty-four hours, before dispensing.

This solution is used by the patient in a dilution with from 2 to 10 parts of water, and is gently dabbed on. It is not so efficient as a dressing. Solution of aluminum acetate contains about 5.5 per cent of neutral aluminum acetate. It is diluted with 8 parts of water, and is usually applied as a cool wet dressing.

Some absorbent powder like calamine, zinc oxide, magnesium carbonate or any of the other powders is usually suspended in the lotions. They are in reality powdery lotions.

Calamine Lotion (N. F., V.)

	Gm. or Cc.
Calamine, prepared	8
Zinc oxide	8
Glycerin	2
Lime water	add 100

This lotion usually contains an antipruritic agent like liquefied phenol (from 1 to 2 per cent) or menthol (0.25 per cent) or both, and should be shaken thoroughly before being applied. Coal tar solution (N. F.), 10 parts, or an alkaline solution of pine tar, 10 parts, may also be incorporated in the calamine lotion to increase its antipruritic effect (Pollitzer, Darier).

Poultices.—Starch poultices are also excellent cooling and soothing agents. They are prepared by mixing 1 tablespoonful of starch with 2 tablespoonfuls of cool water, and adding the white paste thus formed little by little to 6 tablespoonfuls of boiling water, stirring constantly until a colorless jelly is formed. This is spread on a piece of muslin, the borders being folded over the mixture before application.

Powders.—The various mineral and vegetable powders may be used singly or combined for their drying, cooling and antiphlogistic effects. They may be applied as a protective dressing over fatty applications and also for their antiseptic effects. Oil of thyme (1 per cent), salicylic acid (3 per cent), zinc oxide (5 per cent) and boric acid (7.5 per cent) in purified talc make an excellent foot powder when hyperhidrosis and bromidrosis are present. I have found salicylic acid and boric acid, which are active ingredients of Whitfield's ointment, incorporated in a powdery base, an excellent adjuvant to the treatment of dermatophytosis by other topical remedies. If the ordinary powders are found too drying or one wishes to protect the skin from maceration by the sweat, urine or exudation, as occurs in intertrigo, beginning bed sore, erythrodermas, etc., one may make use of one of the fatty powders. Sulphonated bitumen (from 5 to 10 per cent), coal tar (from 1 to 5 per cent) or balsam of peru (from 5 to 10 per cent) may be added.

Fatty Powder (Pharmaceutical Recipe Book)

	Gm. or Cc.
Stearate of magnesia	10
Liquid petrolatum	10
Talc	80

Water Pastes.—The watery pastes, the composition of which I have previously given, are useful in the subacute inflammatory and itchy dermatoses. They are applied with a camel's hair brush, allowed to dry, and are then covered with talc. They are easily removed with plain water.

Lead Subacetate Watery Paste (Boeck)

	Gm. or Cc.
Glycerin	50
Starch	100
Talcum	100
Solution of lead subacetate	200

Creams.—Among the soothing and cleansing preparations may be classed those fatty bodies that are capable of carrying a goodly proportion of water. These are known as creams. The well known cold cream is a preparation of this sort but is made with wax. The following is the formula according to the tenth revision of the U. S. Pharmacopeia (ointment of rose water):

	Gm. or Cc.	
Spermaceti	12	5
White wax	12	
Expressed oil of almond	56	
Sodium borate	0	5
Stronger rose water	19	

Unna's formula, which makes a good cooling cream, is as follows:

Benzoinated lard Anhydrous wool fat Lime water	Equal parts of each

Liniments and Emulsions.—The liniments for dermatologic use are soothing preparations like the liniment of lime water and almond oil (equal parts of each). The emulsions or liniments with powdery suspension frequently contain acacia or tragacanth as emulsifying agents. These differ from lotions in that the suspensions are more permanent and less drying.

Calamine Liniment (Pusey)

	Gm. or Cc.	
Powdered tragacanth	4	
Phenol and glycerin, mixed, of each	0	75
Zinc oxide	30	
Calamine	30	
Olive oil	120	
Water to make	500	
Oil of bergamot	1 to 2	

Add bergamot, phenol and glycerin to oil and put in a bottle. Shake until a film of oil covers the entire bottle. Add Merck's powdered tragacanth until a yellowish opaque mixture is formed. Add 120 cc. of water and shake. Mix the calamine and zinc oxide, dry and stir up with 240 cc. of water in a separate bottle. Then add about 30 cc. of this at a time to the oil mixture in the other bottle and shake each time. The rest of the powdery mixture should be added until the quantity is brought up to 500 cc.

A pink creamy mixture is formed to which various active ingredients may be added if necessary.[1]

Calamine or Magnesium Carbonate Emulsion

	Gm. or Cc.
Phenol	1
Glycerin	3
Calamine or magnesium carbonate	4
Zinc oxide	4
Olive oil	
Lime water	
Of each to make	100

Shake well.

Aluminum Acetate Emulsion (Rosen)

	Gm. or Cc.
Solution of aluminum acetate	30
Zinc oxide	30
Talc	20
Magnesium carbonate	10
Lime water	160
Olive oil, to make	300

1. Pusey, W. A.: Calamine Liniment, J. Cutan. Dis. **34**:826, 1916.

Glycerite of starch and the emulsions of hydrous wool fat with the hydrocarbons or zinc oxide in alcohol-washed olive oil are some other soothing remedies that may be employed. All these preparations are indicated in acute dermatitis accompanied by oozing. Certain of the essential oils and liniments, lime water and linseed oil, have obtained popularity in burns because they seem to be somewhat anesthetic. They may have similar effects in phagedenic and gangrenous ulcerations.

Pastes.—When the inflammation has passed its acute stage, simple pastes may be used like zinc paste without the salicylic acid.

Zinc Paste (N. F. V.)

	Gm. or Cc.
Salicylic acid	2
Zinc oxide	24
Starch	24
Petrolatum	50

Pastes may be medicated with sulphonated bitumen (10 per cent), precipitated sulphur (from 3 to 5 per cent) or resorcinol (from 1 to 2 per cent), as when used for seborrheic eczema.

Aluminum Acetate Zinc Paste

	Gm. or Cc.
Solution of aluminum acetate	10
Anhydrous wool fat	20
Zinc oxide	10
Starch	10
Petrolatum	10

HEALING (CICATRIZING), ANTISEPTIC AND ASTRINGENT AGENTS

For clean surgical wounds, as after surgical excision of the skin for microscopic diagnosis or of abnormalities of the skin for cosmetic or other purposes, an ordinary aseptic dressing is used.

Baths.—The local mild antiseptic baths may be employed for the lymphangitis of the limbs and of the penis. The full mild antiseptic baths may be of use in the generalized dermatoses, like the infectious eczematoid dermatitis, generalized pyodermas, etc., (see medicated baths under cleansing agents).

Moist Antiseptic Dressings and Lotions.—Injuries to the skin produced by trauma, burns, chemicals, etc., are infected at the start or liable to be so later. Moist dressings with weak antiseptic solutions that are the least irritating are especially to be recommended, so as not to hinder the tissues in their natural tendency to overcome the infecting agents. Boric acid solution, a solution of aluminum acetate in (1:8) dilution and Thiersch's solution are a few of the mild antiseptics.

Thiersch's Solution

	Gm. or Cc.
Salicylic acid	1
Boric acid	6
Sterile distilled water to make	500

With the possible exception of Davidson's tannic acid (from 2 to 5 per cent solution) treatment for burns, wet dressings should not be applied longer than necessary, as a rule usually, from twenty-four to thirty-six hours, for the maceration of the skin that occurs favors penetration into the cutis and systemic absorption and also delays epidermization. Some of the fixed and essential oils, also the fusible paraffin mixtures, have analgesic and antiseptic properties, but have the fault of being impermeable. It is important to remember that the weeping, crusting and suppurating dermatoses require the mechanical removal ot all débris, if there is any, and to keep it down to a minimum by means of lotions, irrigations or spraying and wet dressings.

The use of an antivirus (the autogenous bacterial filtrate of Besredka) as a local immunizing wet dressing has recently been advocated for the pyodermas, infected wounds and ulcers. Other dressings of a biologic nature, like plain or an immune horse serum against organisms of suppuration, or d'Herelle's bacteriophage, favor healing through phagocytosis, cytophylaxis or bacteriolysis. Insulin used as a wet dressing or in ointment form has also been successfully used in France for the treatment of ulcers of the leg, even in nondiabetic persons.

Ointments.—After the preliminary wet dressings are discarded, rarely de novo, watery pastes, creams and sometimes the glycerites, etc., may be tried. Borated watery paste, or 10 per cent boric acid in hydrous wool fat, might be tried first to see how the lesions tolerate applications of this sort. Sulphonated bitumen (from 5 to 10 per cent) in a watery zinc paste may be added, and finally an ointment of balsam of peru (5 or more per cent) may be applied for its cicatrizing properties. This procedure is somewhat different from the surgical methods pursued in wounds, lacerations and erosions from trauma. In burns, acute dermatitis from chemicals and other irritants, folliculitis, furunculosis and other types of pyoderma, also herpes, acute infective ulcerations, etc., the foregoing dermatologic principles seem to produce the best results.

Compound Resorcinol Ointment (N. F.) *with Healing and Antiseptic Properties*

	Gm. or Cc.
Resorcinol	6
Bismuth subnitrate	6
Zinc oxide	6
Oil of cade	10
Petrolatum	
Hydrous wool fat	
Paraffin of each to make	100

A few words are necessary on the antiseptic treatment of the ordinary impetigo and impetiginous dermatoses. Darier prefers the yellow mercuric oxide to the white precipitate (ammoniated mercury) ointment

that is so favored in this country. He adds salicylic acid and resorcinol to the yellow oxide which, after standing, causes the liberation of free mercury globules, giving the compound a grayish color.

Darier's Formula

	Gm. or Cc.	
Yellow mercuric oxide	1	
Resorcinol	0	5
Salicylic acid	0	5
Petrolatum	10	
Hydrous wool fat	10	
Lard	10	

While on the subject of impetigo, it may be appropriate to state that the white precipitate ointment has proved very efficacious. It is not necessary to prescribe a stronger ointment than from 5 to 10 per cent, usually the former. An excellent excipient is equal parts of zinc oxide ointment and cold cream. According to my experience, soap and water should be used to cleanse the parts each time before renewing the application. Shaving is not necessarily interdicted.

Kellert [2] recently found that impetigo neonatorum responds rapidly to a sterile 50 per cent solution of glycerin in water if daubed on daily all over the body of the infant soon after the bath. I have also found this method more effective than the usual remedies hitherto prescribed. Of course, the infection must be traced to its source to prevent the spread of the disease to others. The antiseptic soaps have not been shown to be of greater bactericidal value in impetigo or any other infection of the skin than ordinary nonmedicated soaps. Their use is, however, somewhat satisfying to the patient.

Powders.—Powders as antiseptics or cicatrizing agents are not used as much now as formerly. This is particularly true of iodoform, because of the toxic signs that often develop following its use. In infective ulcers like a chancroid, it yields good results. Less toxic powders are thymol iodide, bismuth subgallate, tribromphenol of bismuth and some others of an antiseptic nature. They may be used in infected wounds and ulcers and also as a dusting powder for the feet when infected with dermatophytosis. "The ringworm foot powder" (salicylic acid, 3 parts; benzoic acid, 5 parts; in equal parts of starch and talc) seems to be just as efficacious and not so capable of producing symptoms of a toxic nature.

Concentrated Solutions for Painting, Touching, Etc.—Solutions, like tincture of iodine, full strength or dilute, and the various dyes, like carbol fuchsin, gentian violet, methylene blue (methylthionine chloride, U.S.P.), mercurochrome-220 soluble, and boric acid, salicylic acid,

2. Kellert, E.: Am. J. Obst. & Gynec. **18**:426, 1929.

resorcinol, camphor, thymol, eucalyptol, oil of cinnamon, in an alcoholic vehicle, are painted on with a cotton applicator, or the affected parts are just touched once or twice. A brief application for a few minutes with phenolized glycerin (1 : 50) to a furuncle of the external auditory meatus is useful in this painful disorder. The alcoholic solution of the volatile oils, cinnamon (2 per cent) with thymol (5 per cent) has been found fungicidal by Kingery, Myers and Thienes. In a personal communication, Whitfield suggested the following preparation for chronic dermatophytosis of the toes:

	Gm. or Cc.
Salicylic acid	3
Benzoic acid	5
Acetone	15
Alcohol to make	100

(Whitfield uses methylated spirits of industrial alcohol, but I believe this to be inadvisable.) This preparation is painted on with a camel's hair brush, once or twice daily. Ruggle's iodine camphor preparation is used similarly.

Ruggle's Iodine Preparation

	Gm. or Cc.
Tincture of iodine	6
Spirit of camphor	24

The following is also recommended:

	Gm. or Cc.
Metaphen (1:500)	10
Acetone	5
Alcohol	85

This makes a 1 : 5,000 metaphen solution in acetone and alcohol.

In chronic patches of lupus erythematosus, Holländer utilizes applications of tincture of iodine locally, together with the internal use of quinine, to obtain the action of nascent iodine at the site of the lesions. This method may still be utilized in cases resistant to therapy with gold compounds. The quinine hydrochloride is given in doses of 0.5 twice daily, and the lesions are painted each time with tincture of iodine ten minutes after the quinine has been taken. The development of a local reaction indicates a rest from treatment for five days.

Gargles.—Preparations in the form of gargles or mouth washes used for stomatitis and buccal ulcerations should be mostly of a soothing nature and only of weak antiseptic and astringent action. Often a physiologic solution of sodium chloride will suffice. Hydrogen dioxide water (1 : 10) or a few drops of tincture of krameria or myrrh in a glass of water are excellent in metallic stomatitis. Alum, sodium borate, potassium chlorate and chloral hydrate (1 : 100) may be incorporated in glycerin or honey.

Local applications to the mouth, collutories, may be applied with the following on a cotton swab:

	Gm. or Cc.	
Phenol		
Iodine, equal parts	0	25
Potassium iodide	1	
Glycerin	50	

This preparation is recommended for simple ulcerations. Borated glycerin (4:30), borated honey (5:20) and alum with honey (5:30) are recommended for thrush. I have found the clear crystal alum pencil an excellent and rapid cure for perlèche. For the aphthous ulcers, a 2 to 5 per cent solution of silver nitrate is the most serviceable. In Vincent's stomatitis, the local application of freshly prepared neoarsphenamine solution in glycerin (1:10) and fresh sodium perborate in solution (1:20) is effective. Reasoner has obtained good results by using a concentrated solution of soap. Some oral surgeons prefer local applications of chromic acid solutions (1 to 2:100). Frank[3] uses topical applications of tincture of iodine followed by a solution of potassium arsenite (Fowler's solution); the latter is also used internally (10 minims [0.6 cc.] three times a day for five or six days).

In tuberculous ulcers of the mouth, Pfannenstill places gauze tampons saturated with 3 per cent solution of hydrogen dioxide on the individual lesions, and obtains the liberation of nascent iodine locally by the simultaneous internal administration of sodium iodide (1:30), one tablespoonful every two hours. I have seen good results in a few patients.

Varnishes and Plasters.—These are mostly used in fissures of the lips and cracked nipples. Flexible collodion and solution of the gutta percha, B. P.C., are commonly used for minute wounds. Zinc oxide plaster is also used for the same purpose. The mercury plasters have fallen into disuse because they are too irritating. The salicylic acid (from 5 to 10 per cent) plaster sticks of Pollitzer that he recommends for the treatment of furuncles and simple carbuncles have in my experience given quite gratifying results. The other medicated plasters are either hard to get or too old to be effective, as they usually come from Germany. Pure sulphonated bitumen, balsam of peru and the tincture of benzoin form a thick film after drying and are often applied for a fissure of the lip or cracked nipple as a protective dressing after preliminary cauterization. Unna's zinc gelatin dressing for varicose ulcer is a sort of varnish that has a strong antipruritic action. The formula for this will be found under the heading of antipruritics.

3. Frank, P.: Laryngoscope **39**:831 (Dec.) 1929.

DESQUAMATING AND KERATOLYTIC AGENTS

This group of remedies is applicable to the scaly or crusted dermatoses and to the keratoses. When one has to treat a skin surface covered with scales, as in psoriasis or psoriasiform eruptions, it is indispensable that the first step should be that of ridding the lesions of their scales.

Baths.—The ordinary warm tub bath with a bland soap may rid the skin of scales, if large surfaces are involved. An alkaline bath (from 60 to 250 Gm. of sodium carbonate) or sulphurous baths (hepar sulphur, from 60 to 100 Gm.) or sweating caused by the vapor or dry air baths may accomplish the desired result.

Soaps.—The potash soaps, which are soft, are more keratolytic than the soda soaps. As was mentioned previously, the superfatted soaps are generally preferred, because they are less irritating to the skin and keep it more supple. Soaps owe their cleansing power to the fact that they remove oil and grease by forming an emulsion and also take the débris or scales into suspension.

Liquid Superfatted Soap (Surgical use)

	Gm. or Cc.
Liniments of soft soap, U.S.P.	20
Castile soap	20
Olive oil	17
Oil of lemon	q.s.
Water	1,000
Filter.	

Lotions.—A decoction of quillaja (75:1,000), tincture of quillaja (30:1,000) and saponin (1:1,000) are, according to Darier, preferable to soaps for cleansing the scalp. Alcohol, ether or still better benzine, on a wad of absorbent cotton, will cleanse the skin sufficiently for inspection. Moist dressings or a soap poultice will also remove crusts and scales, but it takes several hours.

Ointments.—The simple ointment of the U. S. Pharmacopeia, 1 part of yellow wax to 4 parts of benzoinated lard, suffices to soften or detach any scales present on the skin. For the scalp the following formula is useful:

	Gm. or Cc.
Cocoa butter	10
Almond oil	20
Oil of rose	1 minim

The soapy ointments may be applied to the skin and left to dry, as in acne and in oily scalps. They are easily removed with moist cotton.

Soapy Salve (Darier)

	Gm. or Cc.
Powdered soap	40
Lard	40
Almond oil	20
Oil of geranium	4 minims

Sulphur and other active remedies may be incorporated, but not bodies that are incompatible with alkalis, such as acids, mercurials, pyrogallol, chrysarobin and the wood tars (juniper or cade, pine or picis, birch or rusci and beechwood or faegi). There are some evident exceptions to this rule, as in Dreuw's ointment, but in general these incompatibilities should be recognized and avoided.

Lactic, acetic and salicylic acids are all keratolytic. Of these, salicylic acid is the best. The latter is also used in many pastes or salves as a mordant and antipruritic agent. In petrolatum, in 5 per cent strength, it is the most commonly used detergent in psoriasis, ichthyosis and keratosis pilaris. It displays its maximum effect (keratoderma, circumscribed hyperkeratoses) in lard or castor oil or a varnish, if covered by an impermeable dressing.

Resorcinol in 1 per cent concentration is a keratoplastic agent. When it is of 5 or more per cent strength, it is a detersive and even strong exfoliating agent (acne, seborrhea, pigmentations). The following formulas may be found useful. They are keratolytic and exfoliating in action.

For Severe Acne (Brocq)

	Gm. or Cc.
Resorcinol	10
Camphor	10
Potash soap	15
Precipitated sulphur	30
Prepared chalk	5
Petrolatum	30

Apply five, then ten, then fifteen minutes before bath.

(Unna-Pollitzer)

	Gm. or Cc.
Resorcinol	40
Zinc oxide	10
Kaolin	5
Benzoinated lard	25

(Darier)

	Gm. or Cc.
Resorcinol	20
Potash soap	20
Sulphur	20
Spirit of lavender	40

In localized keratodermas, callosities and corns, potash soap plasters and strong salicylated plasters and collodions render good service.

Depilatories.—The depilatory liquids, powders and pastes are not to be recommended for hypertrichosis or the hairy nevus, but sometimes may be used in special circumstances. They are usually strong keratolytic preparations containing barium, calcium, strontium or sodium sulphide.

Sodium Hydrosulphide Liquid Depilatory (Cerbelaud)

	Gm. or Cc.
Sodium hydrosulphide	10
Witch hazel water	100

Moisten an absorbent cotton swab with this and apply to the part. Wipe off after two or three minutes with a dry swab, and wash carefully.

Barium Sulphide Depilatory Powder (Pharmaceutical Recipe Book)

	Gm. or Cc.
Barium sulphide (yellow)	10
Zinc oxide	5
Wheat flour	5

Mix with water to form stiff paste before applying.

Barium Sulphide Depilatory Paste (Brisson)

	Gm. or Cc.
Barium sulphide	7
Sodium citrate	2
Zinc oxide	10
Starch	10
Oil of rose	3 minims

Add enough rose water to make a thick paste; apply for from three to five minutes and then remove.

All depilatories are rather irritating to the skin. The preparation should first be tested on the arms, and if found not irritating to the patient in the allotted time set for depilatory action, it may be used on the part to be treated.

Epilating Wax Sticks or Blocks (Pusey)

	Gm. or Cc.
Yellow wax	20
Rosin, fully powdered	80

When applied to the skin and left to harden, it plucks the hairs by the roots when it is pulled off quickly.

REDUCING AGENTS

The biologic action of those remedies classed as reducing agents is based, according to Unna, on their property of taking up oxygen. Darier and Jadassohn believe that the progressive order of activity of the usual reducing agents is about as follows: mercurial salts, resorcinol, sulphur and the tars. The most active are pyrogallol and chrysarobin. They are powerful exfoliating agents causing irritation or severe inflammation of the skin, if strong enough and applied over a sufficient period of time. When applied for a short time or in weak concentration, they are keratoplastic, antiseptic, decongestive and antipruritic. Sulphonated bitumen is classed by most writers as a tar, because it is made from the distillation products of a bituminous stone, the remains of a fossilized fish, but analysis shows that it contains also about 10 per cent of sulphur. The action of this remedy varies. Some claim that it acts mostly as a reducing agent, while others attribute a mild antiseptic

action to it. It is incorporated in many formulas, either as the active agent or as an adjuvant to some other active ingredient, to enhance its effect, as salicylic acid is known to do (mordant).

In the choice of excipients for the various reducing agents, it is important to remember that the wood tars (pine, juniper, birch and beechwood) have an acid reaction, whereas the mineral or coal tar has an alkaline reaction. Coal tar will mix with alkalis and soaps, whereas the wood tars, with certain exceptions like Dreuw's ointment, will not.

Reducing agents are variously employed for acne, seborrhea, rosacea, the seborrheids, psoriasis, dry psoriasiform dermatoses, the lichens and the lichenified and parakeratotic dermatoses, in the following ways:

Baths.—There is no advantage in the use of medicated baths as skin-reducing agents. Hepar sulphur baths may be used for such effects if desired.

Moist Dressings.—Resorcinol in weak dilutions (up to 1 per cent) and sulphonated bitumen (from 2 to 10 per cent) may be used in this fashion with favorable action. Resorcinol should not be used over too large an area as it is a diatomic phenol, and toxic symptoms which are sometimes fatal may develop.

Watery Lotions.—In order to render the tars miscible they must first be saponified with quillaja, saponin or some similar substance or incorporated in a soap. Sulphonated bitumen is soluble in water. Sulphur may be employed as a suspension or in a colloidal state in lotions or in soaps. Sulphur may also be dissolved in carbon disulphide and used as a topical remedy for the scalp, but the vehicle is rather dangerous to use on account of its high inflammability. Carbon tetrachloride may be used instead, but its unpleasant odor is difficult to conceal and is objectionable to most patients.

Sulphur Lotion (Pharmaceutical Recipe Book)

	Gm. or Cc.
Precipitated sulphur	2
Glycerin	3
Alcohol	12
Rose water	40
Lime water.....to make..	100

Kummerfeld's Lotion

	Gm. or Cc.
Precipitated sulphur	10
Spirit of camphor	20
Glycerin	5
Rose water	45
Water	45

Lotio Alba (National Formulary)

	Mild Gm. or Cc.	Strong Gm. or Cc.
Zinc sulphate	4	8
Sulphurated potassa (fresh)	4	8
Rose water.....to make..	100	100

Each chemical is dissolved separately in 48 cc. of distilled water and filtered. The sulphide solution is slowly poured into the zinc sulphate solution. These ingredients are then mixed thoroughly in a mortar. The rose water is added to make 100 cc. When prepared properly, a smooth white suspension with a strong sulphurous odor is the result. On standing, the solid material collects at the bottom, occupying about one third of the bottle.

Modified Lotio Alba (in Seborrhea, Acne, Rosacea)

	Gm. or Cc.
Saturated solution of potassium sulphuret	40
Saturated solution of zinc sulphate	60
Glycerin	6
Cologne water	q.s.

Precipitated sulphur (10 per cent), betanaphthol (0.5 per cent) or resorcinol (2 per cent) may be added to the white lotion to increase its reducing and scaling action. When sulphur is added, the lotion generates gas on standing, and therefore should be dispensed in an incompletely filled bottle.

Vleminckx Solution.—This is a filtered solution of sulphurated lime, of a clear brownish-red color, that is diluted with 3 or 4 parts of water at first, and dabbed on at night, to be removed the following morning. Stronger solutions may be used later, if not too irritating. The unfiltered solution is still stronger, and may be used for still more powerful effect.

Although Unna claimed that sulphur acted as a reducing agent, the effects in acne, seborrhea, etc., are apparently due more to stimulating, keratolytic and also antiseptic effects. When sulphur is applied to the skin, sulphuretted hydrogen develops, and this probably explains its marked antiparasitic action. It should also warn against the use of metallic salts, especially bismuth, lead and mercury, either locally or systemically, at the time that sulphur is being applied. The red mercuric sulphide is a mercury preparation that may be combined with sulphur compounds without forming the black metallic sulphides. Mercuric subsulphate will mix with the insoluble sulphides, but it is incompatible with the soluble sulphides.

Acid Mercurial Lotion (Acne) (Darier)

	Gm. or Cc	
Mercuric chloride	0	2
Solution of acetic acid (5 to 6 per cent)	1	
Tincture of benzoin	5	
Kaolin	5	
Alcohol	20	
Water	70	

Resorcinol Salicylic Lotion

	Gm. or Cc.
Resorcinol	2
Salicylic acid	2
Alcohol....to make..	100

Camphor Lotion

	Gm. or Cc.
Spirit of camphor	1
Alcohol	100

Alcoholic and Etherial Lotions.—These preparations are widely used in the scaling conditions of the scalp, seborrhea and premature alopecia. When the scalp is dry, castor oil or almond oil may be added (1 to 5:100). The various formulas may be combined so that they are cleansing, stimulating and antiseptic. They are known as hair tonics and hair dressings and are applied by massaging with the finger tips or small brush.

	Gm. or Cc.	
Betanaphthol	0	1
Mercuric chloride	0	2
Resorcinol	0	5
Ammonium chloride	0	5
Chloral hydrate	0	5
Spirit of lavender	100	(Darier)

Resorcinol lotions are liable to stain gray and blond hairs a greenish color. Resorcinol monoacetate is less apt to do so.

	Gm. or Cc.
Resorcinol monoacetate	5
Compound spirit of myrcia	
Cologne water	
Alcohol (90 per cent)....Of each to make..	100

For Dandruff and Dry Scalp

	Gm. or Cc.	
Mercuric chloride	0	3
Resorcinol monoacetate	6	
Castor oil	6	
Spirit of formic acid	20	
Compound spirit of myrcia	100	

The following will not stain the hairs (Darier):

	Gm. or Cc.
Tincture of cantharides	5
Tincture of jaborandi	15
Compound spirit of myrcia	15
Cologne water	15
Alcohol (90 per cent)	50

	Gm. or Cc.	
Thymol	0	1
Tincture of capsicum	15	
Compound spirit of myrcia	15	
Spirit of lavender	70	

MacKee's Hair Lotion

	Gm. or Cc.	
Croton oil liniment	0	3
Oleoresin of capsicum	0	1
Corrosive mercuric chloride	0	1
Tincture of cantharides	30	
Alcohol	90	
Oil of violet	0	1
Water to make	240	

Instead of the corrosive mercuric chloride the spirit of formic acid (from 5 to 15 cc.) may be added.

	Gm. or Cc.
Quinine hydrochloride	1
Tincture of jaborandi	20
Spirit of ether	80
Perfume	q.s.

	Gm. or Cc.	
Mercuric chloride	0	1
Salicylic acid	0	2
Coal tar solution	15	
Spirit of ether	15	
Spirit of rosemary	15	
Alcohol	55	

Recently cholesterin has been incorporated in hair lotions (0.1 per cent) for its supposed local stimulating action on the hair follicle.

Soapy Wash for the Scalp

	Gm. or Cc.
Oil of birch tar	1
Oil of cade	1
Tincture of quillaja	20
Alcohol (60 per cent)	80

Creams and Glycerites.—For milder reducing action, the creams and glycerites are used, incorporating mild mercurous chloride (2 to 10: 100), mercuric subsulphate and yellow mercuric oxide (2 to 5: 100) or percipitated sulphur (2 to 30: 100).

Jackson's Sulphur Cream for Dandruff [4]

	Gm. or Cc.	
Precipitated sulphur	7	
Sodium borate	0	5
White wax	7	
Liquid petrolatum	37	5
Rose water	15	

Rub in once or twice a week.

The following remedy is commonly prescribed by the French school for psoriasis, because it has the advantage of permitting easy cleansing of the skin:

	Mild Gm. or Cc.	Strong Gm. or Cc.	
Oil of cade	15	50	
Liniment of soft soap, U.S.P.	q.s.	5	
Neutral glycerite of starch	85	45	
Oil of cloves	q.s.	q.s.	(Darier)

4. Jackson, G. T.: Therapeutic Notes on Sulphur Cream, J. Cutan. Dis. **19**:257 (June) 1901.

Pastes.—The pastes are more active and more convenient to use, but only on the glabrous skin.

Ichthyol Sulphur Paste (Darier)

	Gm. or Cc.
Sulphur precipitate	3
Sulphonated bitumen	5
Resorcinol	1
Zinc oxide	8
Starch	8
Petrolatum	10
Hydrous wool fat	10

Tar Sulphur Paste (Darier)

	Mild Gm. or Cc.	Strong Gm. or Cc.
Sulphur precipitate	3	5
Oil of cade	5	10
Salicylic acid	1	1
Resorcinol	20	18
Zinc oxide	20	18
Talc	20	18
Petrolatum	50	47

Substitutions in powders, fats or in the active ingredients may be made to suit the individual case.

Salves.—Salves are the most active of the ointments. They are especially useful for obstinate dermatoses in certain locations.

Unna's Ointment (Lichen Planus)

	Gm. or Cc.	
Liquefied phenol	5	
Mercuric chloride	0	5
Zinc oxide or diachylon ointment	94	5

Seborrheic Eczema, Eczematides of Face

	Gm. or Cc.
Sulphur precipitate	3 to 5
Red mercuric sulphide	3 to 5
Balsam of peru	3 to 5
Petrolatum	100

For Psoriasis of the Body (Dry Chronic Plaques)

Dreuw's Ointment (Preliminary Bath or Keratolytic Ointments Required)

	Gm. or Cc.
Salicylic acid	10
Oil of birch tar	20
Chrysarobin	20
Liniment of soft soap, U.S.P.	25
Petrolatum	25

This compound is a very powerful and effective reducing agent, because the tar and salicylic acid enhance (mordants) the effects of the chrysarobin. The alkaline liniment of soft soap U.S.P. is said to neutralize most of the salicylic acid component, but according to McMurtry, the soft soap acts as a solvent and allows the chrysarobin to penetrate the epidermis and dermis.

Pyrogallol ointment in strengths of from 1 to 5 per cent may also be used for psoriasis of the body. It may be combined with some of the other reducing agents, but in all cases it must be closely watched for toxic signs. Neisser, Jadassohn, Sabouraud, Darier and others have found weak preparations of chrysarobin (from 0.1 to 1 per cent) ointment or paste just as effective as the stronger concentrations. In all cases these powerful reducing agents, especially chrysarobin, should not be used on the scalp, face or hands. Chrysarobin is the glucoside and the chief derivative of Goa powder. Chrysophanic acid is present in chrysarobin, but is usually obtained from other sources, as rhubarb and senna. Clinically, the action of the chrysophanic acid is much inferior to chrysarobin, and the latter should be ordered when an active remedy of this type is prescribed. All precautions must be strictly observed when this remedy is used. It is an irritant to the eyes and kidneys, particularly. Areas of the skin, like the axillae, groins, etc., subject to perspiration are very susceptible to chrysarobin dermatitis. The drug is more irritating in weak alkaline or acid mediums.[5]

Sabouraud considers sulphur and sulphur derivatives especially adapted to the oily diseases of the scalp and the oil of cade or its substitutes to the scaly conditions. Combinations of sulphur and tar in an ointment base are very effective.

	Gm. or Cc.
Sulphur precipitate	5
Oil of birch tar	5
Resorcinol	1
Soap ointment	90

The following formula of Pinkus is good for psoriasis of the scalp:

	Gm. or Cc.
Liquefied phenol	1
Balsam of peru	5
Ammoniated mercury	5
Petrolatum to make	100

The following formula may be used for the seborrheids and psoriasis of the scalp:

	Gm. or Cc.
Salicylic acid	3
Ammoniated mercury	6
Petrolatum to make	100

Plasters and Varnishes.—Chrysarobin (1:10) in solution of gutta-percha, B.P., or collodion may be used for small isolated areas of psoriasis located on nonhairy parts. Although the vehicle seems to

5. Modifications of chrysarobin, like neorobin, have not shown themselves to be any more efficient, as a rule.

protect the skin from all but a small quantity, these preparations frequently irritate the skin on account of the necessarily frequent removal of the dressings. It is popular with some dermatologists who use it also for alopecia areata. Pyrogallol and the various tars may be applied in an ethereal solution, for the same purposes as the aforementioned collodion preparations.

	Gm. or Cc.	
Pyrogallol or Chrysarobin Ether (sulphuric) Alcohol, equal parts	5 to 10 45	(Darier)

Tincture of Coal Tar

	Gm. or Cc.
Coal tar	10
Benzene	20
Acetone	70

Tincture of Birch Tar

	Gm. or Cc
Oil of birch tar (Rusci)	10
Ether (sulphuric)	15
Oil of lavender	15
Alcohol to make	50

These are usually applied with a stiff, short-bristle brush to a limited area of chronic lichenified eczema or to a discrete patch of lichen planus and covered with a layer of zinc paste.

Dind and Brocq in France and White in this country brought into vogue the application of crude coal tar, washed free of its excess of alkali. Every day or every other day, for from four to eight days, it is spread on, undiluted, with a brush, allowed to dry and dusted with talc. This seems to be readily tolerated, even in cases of oozing infantile eczema. The source of the crude coal tar must be reliable.

The plasters containing these reducing agents are irritating in most instances and should be used with caution.

Ointments and paste pencils containing active ingredients like chrysarobin, while they are a clean, accurate and a satisfactory way of applying the remedy to small lesions, are, like the plasters, not available most of the time.

Ointment Pencil, for Chapped Lips (Darier)

	Gm. or Cc.
Cocoa butter	10
Petrolatum	10
White wax	10
Orconette or carmine q.s. to color red	
Tincture of krameria	1
Balsam of peru	2
Essence of geranium, 2 minims	

STIMULANTS AND RUBIFACIENTS

These are employed in the passive erythemas like frostbites and lupus erythematosus, also for alopecia areata, hyperhidrosis, etc.

For Frostbite and Hyperhidrosis

	Gm. or Cc.
Tannic acid or tincture iodine	1 to 5
Spirits of camphor	100

	Gm. or Cc.
Tincture iodine	20
Tannic acid	40
Glycerin	40

	Gm. or Cc.
Solution of formaldehyde, U.S.P.	10 to 40
Salicylic acid	3 to 5
Camphor	3 to 5
Alcohol (80%) to make	200

Watch for fissures and keratosis.

For Frostbite (Pharmaceutical Recipe Book)

	Gm. or Cc.
Balsam of peru	25
Sulphonated bitumen	25
Hydrous wool fat	50

Massage in gently. Camphor (1:100) may be added.

For Hyperhidrosis and Bromidrosis

	Gm. or Cc.	
Oil of thyme	1	
Salicylic acid	3	
Zinc oxide	5	
Boric acid	7	5
Purified talc to make	100	

Astringent Lotions for Hyperhidrosis

	Gm. or Cc.
Aluminum chloride (hydrous) U. S. P.	20 to 40
Water to make	100

	Gm. or Cc.
Solution of formaldehyde, U.S.P.	20 to 30
Water to make	100

These lotions are dabbed on the parts several times daily with a piece of cotton and allowed to evaporate.

For lupus erythematosus of the scalp, swabbing with liquefied phenol followed by the application of alcohol produces a varying degree of erythema; so will mild applications of trichloracetic acid (about once weekly). Painting the areas with tincture of iodine, liquefied phenol and chloral hydrate (equal parts) is also useful. With the exception of trichloracetic acid, these drugs may also be used in alopecia areata.

ANTIPRURITIC AND LOCAL ANESTHETICS

Various active ingredients in different vehicles may be utilized to produce antipruritic effects. It is frequently necessary to vary or to

combine the drugs used to relieve itching, as this troublesome symptom is somewhat difficult to subdue.

Baths.—Baths are not well tolerated in simple pruritus. The various ingredients have already been mentioned in the discussion of cleansing and soothing agents.

Solutions, Watery and Otherwise.—The following ingredients are a few that are commonly used in a watery solution, applied hot, warm or cool, as a lotion or wet dressing: bran water, infusion of matricaria (20:1,000), infusion of cocoa leaves (10 to 20:1,000), lime water, cherry laurel water, chloral hydrate (2 to 4:100), solution of chlorinated soda (20 to 50:100), phenol (1 to 5:100) and, according to Pollitzer, coal tar solution or pine tar solution (10:100).

For painting, dabbing or spraying the parts, these may be tried: phenol in alcohol (1:100), camphor in alcohol (1:10), camphor in brandy (1:40), resorcinol in alcohol (2 to 5:100), menthol in liquid petrolatum (1 to 2:100), menthol in alcohol (1 to 2:100), thymol in alcohol (1:200), chloroform in mentholated oil (2:100), silver nitrate in alcohol (5 to 10:100), 5 per cent of phenol in equal parts of glycerin and water, lemon juice and even ether or ethyl chloride as a spray.

It is difficult to say which of these is the most effective. The milder remedies should be tried first. The following formulas may be of additional help:

Coal Tar Solution[6]	Gm. or Cc.	
Glycerin or castor oil		5
Alcohol to make	100	

Cover with a powder or watery paste.

	Gm. or Cc.	
Aromatic vinegar (N. F.)		
Spirit of camphor		
Cherry laurel water, of each	100	
Glycerin	50	(Darier)

	Gm. or Cc	
Cocaine hydrochloride	1	
Chloral hydrate	1	
Resorcinol	1	
Glycerin	3	
Alcohol	20	
Cherry laurel water	30	
Water	44	(Darier)

6. The coal and wood tars are not miscible in water. Some saponifying agent like quillaja is usually necessary. The coal tar solution is made of 20 Gm. of prepared coal tar saponified with 10 Gm. of quillaja, and alcohol to make 100 Gm. The alkaline solution of tar is made of 25 parts of pine tar and 12.5 parts of potassium hydroxide in water to make 100. Crude coal tar dissolved in carbon tetrachloride is known as carboneol. Although considered nontoxic, a dermatitis may follow the use of the tars in susceptible persons.

The synthetic methyl salicylate or natural oil of wintergreen (from 2 to 5 per cent) in alcohol or liquid petrolatum, or antipyrine (10 per cent) in alcohol or watery menstrum is often of benefit.

Ointments.—While an ordinary application of plain petrolatum or lard is sometimes sufficient to allay the itching, it is more often advantageous to incorporate one or several of the antipruritics mentioned previously, as they are more efficient. A glycerite, paste, cream or salve may be used as a vehicle.

Glycerite

	Gm. or Cc.
Tartaric acid	5
Glycerite of starch	95

Paste

	Gm. or Cc.	
Menthol		5
Phenol	1	
Crude coal tar	5	
Zinc paste N. F. (without salicylic acid)	95	

Cream

	Gm. or Cc.	
Cod liver oil	30	
Olive oil	5	
White wax	5	
Paraffin	8	
Rose water	10	
Cherry laurel water	10	
Cholesterol	1	
Coumarin	0	02 (C. Pépin)

Salve

	Gm. or Cc.
Menthol	1
Camphor	5
Chloral hydrate	5
Hydrous wool fat	35
Petrolatum	50

The extract of cannabis indica (1:10) and anesthesin (1 to 3:10) are other antipruritic agents that may easily be incorporated in an ointment or cream, also mixed with alcohol or olive oil and mucilage of acacia.

Occlusive Dressings.—These are usually beneficial, even if only because of the protection of the affected part from exposure to air. Starch poultices and wet dressings will accomplish this if the areas are small. For larger areas Unna's "zinc gelatin" is more practicable. The following formula is sufficient for the bandage of one leg. The amounts given in the right column are more suitable during warm weather. They may also be varied to obtain a thicker or thinner consistency. A phenolized pink color "zinc gelatin" that I have found to

be of excellent service is now being prepared ready for use by H. K. Mulford and Company, after the formula of J. W. Sooy, of Baltimore.

Zinc Gelatin Dressing (Unna)

	Gm. or Cc.
Gelatin	15 or 30
Zinc oxide	15 or 10
Glycerin	25 or 30
Water	45 or 30

If this is prepared properly, it forms a white rubbery mass on cooling. Before being used, it is liquefied in a water bath and applied with a flat paint brush, followed by a thin layer of muslin bandage. Another coating is applied over this. This may be worn for several days or longer. It may be removed easily with warm water.

Active ingredients like sulphonated bitumen may be incorporated in the paste or applied before the gelatin dressing is put on.

Varnishes and Plasters.—All the various tars may serve as a siccative coating by application in the natural state or as tinctures, emulsions, etc.

The plasters, zinc oxide, resorcinol, phenol, salicylic acid, red oxide, cod liver oil, etc., are utilized for antipruritic purposes, but are not commonly used in this country. They must be of recent manufacture and, with the exception of the salicylic acid plasters, are either not obtainable or too old by the time they arrive from Germany (where most of them are made) to be of any value.

LOCAL ANESTHETICS

Many of the cutaneous antipruritics are of anesthetic action on the skin. Phenol, cocaine and ethyl chloride are a few. In the cutaneous neuralgias (zoster, herpes, etc.) such remedies and others mentioned under antipruritics are indicated. Heat in the form of hot poultices or a protective paraffin dressing is helpful in addition to physical measures and systemic medication. In specially severe cases, equal parts of chloral hydrate, camphor and menthol may be gently applied to the neuralgic zone.

The surgical procedures used in dermatology often require a local anesthetic. This is usually injected into the skin at the site of operation or by inductive anesthesia. An aqueous solution of procaine hydrochloride (1 to 2 per cent) with 10 per cent of a 1:1,000 dilution of epinephrine is the safest and most efficient to use. These are prepared as tablets for proper dilutions or in sterile ampules ready for use. A pause of from ten to fifteen minutes is allowed for the full effect to develop. A solution of procaine may cause anesthesia of the skin by ionization. Cocaine and other substitutes for it are more toxic than procaine hydrochloride preparations and should be avoided if possible.

ANTIPARASITICS

Vegetable Parasites.—The treatment of dermatophytosis is at present the question of the hour. Resistant cases are encountered that tax the ingenuity of the most knowing. All the detergent and antiseptic remedies mentioned under the respective headings are utilized, following the indications laid down for the treatment of acute, subacute and chronic inflammatory dermatoses due to any other cause, except those of a chemical nature. It is particularly between the toes and on the hands that failures are encountered. In the cases that are resistant, it is advisable to vary the active ingredients and the vehicles to secure keratolytic and fungicidal effects without undue irritation. Iodine preparations, the various dyes, the volatile oils, standard and stronger concentrations of Whitfield's ointment, red mercuric sulphide, chrysarobin, ammoniated mercury or the various tars, sulphur, etc., may be used singly or combined, as conditions warrant. The ethereal preparations are preferred for the toes.

The 20 per cent salicylic ointment used by Glaze and the same strength of salicylated alcohol used by Satenstein are more suitable for the larger patches on the hands and feet. The treatment causes considerable desquamation and takes the fungi with it, leaving a tender skin that requires only a soothing ointment to bring it to a normal state.[7] These methods are applicable only to conditions of a chronic nature. For the acute cases, milder measures are necessary. The following tar ointment of Ruggles is recommended by him for the acute stage:

	Gm. or Cc.
Zinc oxide	16
Petrolatum	8
Birch tar ointment	12
Cold cream	10

For the groins, perianal region and axillary region, other difficulties are encountered, owing to the marked increase of moisture and heat and irritation from the hairs. Castellani uses the laboratory Ziehl's carbol-fuchsin solution, to which has been added 1 per cent boric acid, 5 per cent acetone and 10 per cent of resorcinol. Deek's ointment is another compound that he has found effective.

Deek's Ointment

	Gm. or Cc.
Salicylic acid	4
Bismuth subnitrate	10
Mercuric salicylate	4
Oil of eucalyptus	10
Petrolatum Hydrous wool fat, of each to make	100

7. Sabouraud has recently suggested the use of the depilatory pastes as even more effective in removing the fungous infected epidermis.

For tinea profunda, the mild mercuric ointment of the United States Pharmacopeia is sometimes sufficient. For the interdigital erosions due to yeastlike bodies, the application of silver nitrate solutions (from 5 to 10 per cent) are quite satisfactory; if not, the other remedies mentioned previously may be tried.

Tinea of the nails requires softening applications with 2 per cent solution of sodium hydroxide, followed by scraping with a file or sharp piece of glass and some hot antiseptic local bath, like solution of chlorinated soda or some of the newer antiseptics like metaphen or hexylresorcinol. Whitfield's ointment (1 part salicylic acid, 2 parts benzoic acid and 30 parts petrolatum) or salicylic plaster 5 per cent may be kept on over night.

Tinea circinata of the body offers no difficulty, especially with tincture of iodine, ammoniated mercury ointment (5 per cent) or the yellow oxide ointment of Darier (see impetigo, under antiseptics). Irritation from the treatment should be avoided.

Ringworm of the scalp has recently been treated by Kingery with remarkably good results by the local application of volatile oils (1 per cent thymol and oil of cinnamon in solution of gutta-percha, B.P.), but further observations are required to establish this as being in any measure as curative as the depilatory treatments with the roentgen rays or thallium acetate medication. Local applications of sulphur ointment, tincture of iodine, tar or, as some prefer, chrysarobin are used at the onset of thallium treatment and throughout the entire course of depilation and regrowth. With roentgen therapy, strong antiparasitic medication is not used until the regrowth of hair is well established, in order to avoid permanent alopecia and other roentgen sequelae.

Tinea versicolor or chromophytosis of the body is usually cleared up with daily applications of a 10 per cent solution of sodium thiosulphate, colloidal sulphur suspensions or corrosive mercuric chloride in alcohol (1:1,000). A mild exfoliative mixture of resorcinol may be used if the condition is resistant. (See desquamating and keratolytic agents.)

Animal Parasites.—Pediculosis: A choice may be made of the following remedies:

Powders

	Gm. or Cc.	
Naphthalene	50	
Talc	100	
	Gm. or Cc.	
Naphthalene	96	(British Army N. C. I. Mixture)
Creosote	2	
Iodoform	2	

Liquids for Washes, Sprays or Sachets.—Benzine, xylene, kerosene, turpentine or camphorated oil (10:100), spirit of camphor, phenolized water (2:100), corrosive mercuric chloride in vinegar (1:500), etc., may be utilized for such purposes.

Wash for Pediculi (Hospital Saint-Louis)

	Gm. or Cc.
Mercuric chloride	1
Spirit of turpentine	130
Glycerin	170
Spirit of camphor	700

Various products derived from cresol and various volatile oils may also be used. These preparations are used for body infestation. It is also necessary to disinfect the clothes by steam sterilization and ironing with a hot iron.

For the scalp, the following is efficient as well as pleasant:

	Gm. or Cc.
Balsam of peru	10
Crude petroleum	50
Olive oil	100
Mucilage of acacia, to make an emulsion	

This preparation is applied to the scalp with a brush at night, and the scalp is covered with a rubber cap (avoid flames). In the morning the scalp is washed with warm water and sodium carbonate (2 tablespoonfuls to a large basin of hot water), and the scalp is then rinsed. The hair is combed with a fine comb dipped in warm vinegar, to remove the nits. This treatment is repeated if necessary, but in order to prevent irritation not before two or three days have elapsed.

The following preparation is effective for the scalp or pubic region (Pharmaceutical Recipe Book):

	Gm. or Cc.
Larkspur seed powder	10
Acetic acid solution	5
Alcohol	10
Glycerin	5
Water, to make	100

The mild mercuric ointment of the United States Pharmacopeia is the one popularly used for pediculosis pubes, but this is frequently very irritating, especially if the hairs have been shaved. Darier recommends his yellow ointment (see antiseptics) as more efficient.

Scabies.—There are numerous formulas, mostly based on sulphur, that may be used. The balsam of peru and storax, either alone or in combination, is also effective. The concentrations of the different drugs

used are various, and so are the types of vehicles used. The following are a few examples:

Sulphurated Lotion (Pharmaceutical Recipe Book)

	Gm. or Cc.
Sulphurated soda or sulphurated potassa	20
Distilled water	100

Compound Sulphur Lotion (Pharmaceutical Recipe Book)

	Gm. or Cc.
Precipitated sulphur	4
Ether	12
Alcohol, to make	100

Ointment for Scabies (Oellers) (Pharmaceutical Recipe Book)

	Gm. or Cc.	
Sublimed sulphur	12	5
Potassium hydroxide	12	5
Distilled water	12	5
Petrolatum	22	5
Hydrous wool fat	22	5
Mix and add		
Zinc sulphate	2	8
Sodium hydroxide	0	8
Distilled water	4	
Liquid petrolatum, to make	100	

Tar, Sulphur and Storax Ointment for Scabies

	Gm. or Cc.
Storax (liquid)	10
Sulphur precipitate	10
Oil of cade	10
Liniment of soft soap, U.S.P.	20
Hydrous wool fat	20
Petrolatum, to make	100

Compound Sulphur Ointment (Hebra-Wilkinson's Ointment) (National Formulary)

	Gm. or Cc.
Sublimed sulphur	15
Oil of cade or birch	15
Lard	30
Liniment of soft soap, U.S.P.	30
Prepared chalk	10

	Gm. or Cc.
Sulphur precipitate	10
Balsam of peru	10
Hydrous wool fat	20
Petrolatum, to make	100

Powdered sulphur (sublimed) may be dusted in the bed sheets in conjunction with the foregoing application. According to Sherwell, it is also efficient if rubbed on the body. The Vienna school favors the use of balsam of peru, pure or in ointment form. Irritation may develop with any of the formulas, but if the treatment is carefully regulated, this should be uncommon. Reinfection will not occur if all infected contacts are treated simultaneously.

A single preliminary cleansing bath is a necessary procedure before any antiscabetic remedy is applied. It is used for three successive nights, and then the skin is cleansed of all applications. All used sheets and other linens, clothing, etc., must be sterilized. Oeller's ointment is said to be effective after one application only.

BLEACHING AGENTS AND STAINS

Bleaching Agents.—The bleaching agents are used in superficial pigmentations, for pigmentation after the use of the roentgen rays, for chloasma, summer freckles, etc., and for hypertrichosis of the face in women. The deeper pigmentations of the skin that occur in nevi or the freckle-like eruption that occurs on the unexposed parts of the skin do not respond to these decolorizing applications. In all cases the effect of these agents is not of a permanent nature.

Lotions.— Aromatic vinegar (N. F.), weak solutions of hydrochloric acid (1 to 2: 500) or watery and alcoholic solutions of mercuric chloride (1 to 2: 500), etc., may be utilized. These should be applied in the morning and in the evening. Those in ointment form should be applied before the patient retires. The following lotions may be used as bleaching agents:

Hardy's Formula

	Gm. or Cc.
Mercuric chloride	1
Alcohol (q. s.) to dissolve	
Lead acetate	2
Zinc sulphate	2
Distilled water	250

Brocq's Formula

	Gm. or Cc.	
Mercuric chloride	0	1
Ammonium chloride	0	1
(Or tincture of benzoin, 5 Gm.)		
Emulsion of almonds	100	

Darier's Formula

	Gm. or Cc.
Ammonium chloride	4
Hydrochloride acid, 5 per cent	5
Glycerin	30
Virgin olive oil	60

For bleaching hair on the face, reliance can be placed only on the use of hydrogen dioxide, either in solution or as a freshly prepared cream. It should be applied after cleaning the parts with ether or benzene.

Ointments.—Creams, pastes and salves which contain acetic acid, mercurials or sulphur and betanaphthol in sufficient concentration possess a strong bleaching action.

Peroxide Cream

	Gm. or Cc.
Hydrogen dioxide solution	15
Petrolatum	10
Hydrous wool fat	5
Zinc oxide	1
Corrosive mercuric chloride	0 05

This cream must be used only when freshly prepared, otherwise it is ineffective.

The following salve may be tried for its bleaching effects:

Hebra's Formula

	Gm. or Cc.
Mild mercurous chloride	6
Bismuth subnitrate	6
Lard or Petrolatum	90

Pastes.—Another way to remove pigmentations, temporarily, of course, is by the use of strong exfoliating pastes of resorcinol.

Plasters.—The various mercurial plasters, while they may be useful, have never been popular with patients. They are very irritating, and, as with all bleaching agents, should be watched carefully for the first signs of dermatitis. If this appears, the treatment should be interrupted at once and a bland soothing cream applied.

Local Injections.—Stillians of Chicago recently developed an apparently successful bleaching method for localized patches of argyria of the skin. Into the stained area is injected intracutaneously a solution containing 1 per cent potassium ferricyanide and 6 per cent sodium thiosulphate; the volume of fluid injected varies with the size of the area treated. This method may also be used as a test for localized argyria, as it causes such lesions to blanch.

STAINS

These may be used for depigmentations like vitiligo, leukoderma and for the depigmentations of scleroderma, radiodermatitis, scars, etc.

Solutions.—The part may be tinted with various alcoholic dilutions of walnut (juglans), which is of a warm brown color or colored with eosin or with the following preparation of MacKee:

Fluidextract of walnut (juglans)	1 part
Five per cent solution of carmine in aromatic spirit of ammonia	2 parts
Alcohol	8 parts

A very weak solution of alum may be used instead of the aromatic spirit of ammonia. Both act as mordants.

In the last few years, Erich Uhlman has recommended a 10 per cent alcoholic solution of bergamot to be rubbed in on areas of vitiligo, to be followed by an erythema dose of ultraviolet rays. While this sensitizing method has been successful, the results reported are as yet too premature to show whether they are permanent. Ionization with various pigments may give permanent effects, but are not to be recommended. The internal use of agents like the acridine dyes, used by Jausion, to sensitize the skin to solar rays is still in the experimental stage. The injection of gold and sodium thiosulphate for the cure of leukoderma has also been reported recently, by Lindsay, as producing good results. Its action, contrary to that of the foregoing sensitizing agents, is attributed to a desensitization of the skin by gold compounds.

CAUSTIC APPLICATIONS AND SCLEROSING AGENTS

The use of caustics is becoming more and more restricted in dermatology, because of the superior results obtained by many of the physical agents now employed. The arsenic solutions, powders and pastes are not in common use for epitheliomas, at least in this country. Darier still favors the Czerny and Trunecek method of using arsenious acid solution, 1 per cent, in equal parts of alcohol and water, for epitheliomas. The solution containing the acid nitrate of mercury recommended by Sherwell for the rodent ulcer has produced some good results. Potassium hydroxide and other chemicals that act similarly have also been used for the same purpose. But these chemical caustics are more or less painful, and have been superseded by the roentgen rays, radium, diathermy and surgical measures, to the satisfaction of all.

Silver nitrate is still useful in excessive granulations and indolent ulcers. The solution of acid nitrate of mercury is often beneficial for painful indolent ulcerations and fissures. Trichloracetic acid is useful when necessary for old fixed patches of lupus erythematosus and lupus vulgaris or tuberculous ulcers. This acid is as good as any drug for xanthelasma palpebrarum and also for flattening some irregular elevations of the skin that have followed a previous lesion of the skin, such as severe acne or variola. Other acids occasionally applied for their caustic effects are chromic, nitric, lactic and hydrochloric acids, phenol and resorcinol. Zinc chloride is hardly ever used nowadays. The local daily application of a solution of potassium arsenite (Fowler's solution) to venereal warts of small size has frequently caused them to disappear in a surprisingly short time.

Compound Potassium Hydroxide Paste (Vienna Paste)

	Gm. or Cc.
Potassium hydroxide	5
Calcium oxide	6

Before use, make a paste by moistening with alcohol.

Creosote in oil (from 5 to 20 per cent) injected into keloids has also been used successfully by Ularic. Neisser recommended from 10 to 20 drops of thiosinamine (10 per cent) in equal parts of glycerin and water for injections along the sides of the keloid. This is occasionally successful. The treatment for keloids, in general, is far from satisfactory.

Patches of lupus vulgaris too large to be excised have been treated with pure potassium permanganate in powder or concentrated solution, strong concentrations of pyrogallol, by a potash and lime paste and Unna's green paste. Darier favors the green paste, because it is less painful. He applies it as follows: A layer of the paste of the thickness of a knife-blade is applied by means of a spatula over the lupus patch. All paste is carefully wiped off the edge of the lesion with cotton, and the application is covered with a large piece of lint and then with zinc oxide adhesive plaster. The paste is left on for from eight to twelve hours; it is then removed, and the lesion is washed with sterile water. Zinc oxide ointment is applied for two or three days. The green paste is renewed twice weekly until a total destruction of the diseased tissue has been accomplished.

Antimony Paste for Lupus Vulgaris (The Green Paste of Unna)

	Gm. or Cc.
Antimony trichloride (freshly prepared)	2
Salicylic acid	2
Creosote (Beechwood)	4
Extract of cannabis indica	4
Hydrous wool fat	8

Small localized patches of lupus vulgaris and of verrucose tuberculosis may be treated with pyrogallol ointment (first suggested by Jarisch). The results are satisfactory although sometimes painful. However, the procedure is simple. A petrolatum ointment of pyrogallol (from 10 to 20 per cent) is applied to the part and covered with lint. This application is changed every day for from five to ten days, and when it is removed a 2 per cent pyrogallic petrolatum is used until clean granulations develop. The pain may be controlled with anesthesin used locally or with a sedative given by mouth. The after-treatment consists of the use of mild soothing and antiseptic creams. Various modifications of the treatment with pyrogallol may be used to suit the case.

Tattoo and Powder Marks.—Various caustic agents are used to remove tattoo marks and powder stains. The object is to cause as little scarring as possible. Variot's method is probably the best. A 50 per cent solution of tannic acid is applied over the scarified area; this is followed by passing a lunar caustic pencil over the part so treated. There is comparatively little pain. This method has been modified recently by M. D. Shie, who introduces the tannic acid solution into the

treated area by needle (ionization) instead of by scarification. A sterile dry or weak tannic acid wet dressing is used as an after-dressing.

SCLEROSING AGENTS

Injection Treatment for Varicose Veins.—The first report of the chemical obliteration of varicose veins was made by Chassagnac, in 1853; later reports were made by Pravaz and by Ellinger and in 1863 by an American physician, Dr. Blackford of Virginia. They used a solution of ferric chloride. The treatment was abandoned on account of severe local reactions.

As early as 1912 Linser claimed that he used corrosive mercuric chloride for this purpose; Sicard introduced sodium salicylate in 1922, and Linser recommended a 20 per cent solution of sodium chloride in 1925. Since then, dextrose (invert sugar), quinine hydrochloride with ethyl carbamate, and the red mercuric iodide, sodium citrate and other drugs have been used. Sodium salicylate, from 20 to 30 to 40 per cent; sodium chloride, 20 per cent, and invert sugar, 75 per cent, seem to give the best results. A combination of any two of these is preferred by some. They all cause an endovenitis followed by a subsequent sclerosis of the walls of the veins.

The treatment is contraindicated in varicose veins due to obstruction in the pelvis, in recently infected veins (phlebitis), in severe diabetes and in arterial or cardiac disease.

The technic is comparatively simple. Injections of varying amounts, depending on the chemical used and the concentration and also on the size of the varix, are carefully introduced into the stripped veins. Necrosis may follow injection into the perivenous tissues. The dangers of embolism are practically nil, if all indications are carefully followed.

COMMENT

The general plan followed in the preparation of this subject is that of the "Mémento thérapeutic" in Darier's last edition of the "Précis de dermatologie" (1928) and also the English translation of the previous edition of the same author by Pollitzer.

Some of the notes of Leistikow in his "Therapie der Hautkrankheiten" are also indirectly included as Darier translated this German work in 1900 and cites him on various occasions.

From these texts, together with some of the American and European references quoted in the body of this article, a fair idea may be gleaned of the more important local medicinal therapy being employed throughout the dermatologic world.

235 West Seventy-First Street.

THE REMARKABLE MEDICINE GUAIACUM AND THE CURE OF THE GALLIC DISEASE

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TO PRINCE ALBERT, CARDINAL AND ARCHBISHOP
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(Continued from page 428)

CHAPTER XI: HOW THE DOCTORS OUGHT TO BE USED IN THIS TREATMENT

But now I know that some people suspect that I believe no doctor should be called in at all in this treatment. This is far from the truth for I think that a learned and wise doctor should be sought and one who in dispensing medicine is not rash or even freehanded and that he should be used as an observer even if he has learned the practice of administering guaiacum by rote. But those doctors of bad character who most eagerly prescribe those foreign things for us, or some medicine brought from the sources of the Nile which is all the more done by them in proportion as a higher price is asked for it, these I insist should be kept far away and I would not even allow the patient to be seen by them through the window grating. Now I have found this fact to be true which Asclepiades realized when he said that medicinal potions were enemies of the stomach and Celsus says that medicine usually harms the stomach. Furthermore it has happened to me as that same author said would happen that when these medicines were poured into the stomach and stayed there the fumes rose to the head and caused enormous pain. Let all men remember this who are going to start this treatment, so that they may not commit themselves rashly to executioners of that sort. Not only because the nature of the treatment has not yet become generally known but also because it is their custom never to admit ignorance, always to give some directions, to prescribe something and no one has ever shown them a specimen even though of his own free will and in sound health that they have not written "recipe" to the apothecaries saying either that they suspect some contraction of disease or that a threatening disease should be warned off: "Unless you taste this, they say, or drink that, you will have a fever." Damnable men and most worthy of hatred. But whatever sort they are they have ventured recently to take many things to themselves in this guaiacum treatment, actually forcing themselves into the affair while even those who sell the wood support them I

suppose with a certain agreement between them and a mutual arrangement. For when they saw that this common and contemptible medicine was bringing it about that in the future there would be no need of so many discourses on their part and when nevertheless they did not dare, although I know many others had, to oppose themselves to so beneficient a thing, and when the merchants in turn were afraid that if the doctors did not approve of it since no one would readily turn to a medicine brought from so far and one whose administration was so contrary to the common medical usage, they themselves would sell very little, I suppose they agreed together that it should be generally given out that the help of the doctors was necessary in this treatment so that in selling a remedy approved by the doctors they might get their gain as previously and in the meantime there should be no loss to the profits of the doctors since they, themselves, were called in for the treatment. But I know some better doctors who in the name of Caesar and of a certain bishop here went to Spain for the sake of investigating and what they had learned from those free men who had been acquainted with the affair in Spagnola they reported, nothing very different from what my experience showed except that they added on their own initiative what medicine ought to be taken on what days and with what observances and that one must live according to an astrological diary: not, I think with any ill will but after a certain fashion of others and with the traditional superstition even of certain good doctors who are carried away with such a desire to help that they sometimes pile on more than they should. I approve of their will. Nevertheless, I consider it dangerous to agree with all men in all things. But to return to those bad doctors I think they agreed with the merchants in order to be admitted to part of the profit. And so I have seen myself a certain doctor, if we are to dignify an unlearned and unskilful ass with this name, who denounced guaiacum with loud contention as a thing of empty import and no moment and one which the merchants said falsely had these powers: but a little after this loud talker when he had been summoned to treat a certain rich man and then another and had gotten a smell of his gold and saw that the matter was one of great profit because of the number of sick men he began first to be more mild and to rage less and less against it and then even to praise it and extol it with proclamations "Because," he said, "I have now at length learned its virtue." Nay, rather you ass, because you have found gain in it for yourself. And in almost the same manner as all other medicines so it seems this too must yield to the canons. If this were done on the authority of those sane and learned doctors I should not criticize although as my judgment indicates I do not think it could yet be done by them and I do not consider it

very necessary; for there in Spagnola where there are no doctors this medicine has need of something or else here also it should be administered without superstition. But can anybody be so credulous as to grant to the doctors that they have handled this affair more skilfully than those who know it by their own experience when we see that guaiacum has existed too short a time with us to give opportunity to them for investigating and learning its nature? For to put it in a few words this affair is still in the realm of wonder but has not yet reached scientific knowledge. So far is it from being capable of being subjected right at this time to their canons or of having any explanation emerge. Let this be settled by all these remarks that they consider it sufficient to be cured by this simple diet which I from experience hand on. In the meantime let them often give themselves to the doctors for observation but let them pass by the doctors' species and simples. Nay, more, let them bid a long farewell to those who wish to restore us from disease by their disputations; these are the men who as I said approve of nothing that is cheap and who think that I am telling a fairy tale when I say that more than eight times I have repelled fevers right at the beginning by drinking my own lotion and with no other medicine; and that in Saxony I have seen men who could put an end to all kinds of intestinal diseases by drinking hot beer with butter: and men who do not believe me when I report that there was a certain steward of my father's who cured a man's wounded skull by certain herbs infused in wine: and who consider it a treatment to be scorned when the worst possible wounds are healed without fear of fever within ten or twelve days by means of a few of my herbs infused either in wine or water saying that these things are not done according to the canon; and now they have the same belief about guaiacum about whose power how acute is their knowledge and how they are accustomed to talk about it may be learned from the answer of a certain noble no longer a young man so as to be just learning, but almost decrepit so that it was probable that he knew Avicenna and Mesues and the other medical authorities as well as his own finger nails. For when I was noting these things particularly and was on a journey at Frankfort when he was writing his "Recipe" he was asked by a certain friend of mine what he thought about guaiacum and he said, "I have not seen it but whatever it is we ought to consider its weight, its color and its odor both qualitatively and quantitatively." Then I said, "But its weight is very great and it sinks in water no matter how much it is cut up. Its color is about that of box wood and it has a certain vague resinous smell; now do you therefore know what is the nature and power of guaiacum?" He

began to overwhelm me with words, prattled something about the prescriptions of Aristotle. Then I said, "It may be, old man, but since this disease is new, the whole business may still be unknown to us." "You are wrong," he said, "the disease is not new since Pliny writes about it." This made me very eager for I wanted to find out what he knew about Pliny that had escaped me and I asked him by what name Pliny called this disease and he said, "Mentagra, because it disturbs the mind." "Then other sicknesses," I said, "do not bother or disturb the mind, or does not frenzy do this and mania and epilepsy and the other diseases of the mind more than the Gallic disease?" He made some explanation or other and I added, "Old man, you must learn to answer more carefully, especially in these matters in which the danger of human safety is involved. If you had read Pliny you would have learned that this disease was called mentagra, not from the mind (mens) but from the chin (mentum) whence that disease originated so that even on this ground it is different from the Gallic disease." And who is so patient as not to berate a pest so dangerously mad as that? But let us leave the ground of doctors of that sort of whom I see the great part abound to be sure in words but are sometimes miserably lacking in knowledge of facts and let us come back to our subject, the sum of which is that in this treatment doctors should be called in as observers not as practitioners: and those as I have often said already should be chosen who are sane and educated and who have had much experience and are so minded as to prefer to be wise alone rather than to go wrong with the rest of the world and who if they can cure a sick man by a diet of beans do not seek out something very expensive and in particular exotic.

CHAPTER XII: WHETHER ANY DISCRIMINATION IS TO BE MADE OF AGE, SEX, OR CONDITION OF BODY IN THE USE OF THIS MEDICINE

The men who, I said, went to Spain to investigate whether this remedy could be of help even to boys and to men already of old age, because there was some doubt as to whether the weak of either sex could endure this diet, received the answer from those who had been in the Island that they had not, to be sure, seen boys cured of the sickness by this medicine, like others, but that the islanders reported that these also were customarily cured in this way and women too without discrimination and moreover very old men. But as I considered the matter there came into my head the well known opinion of Hippocrates "That old men sustain hunger most readily, next those of a robust and strong age, not so well those who are young and least of all

children, especially those who are precocious and more active": although Galen would not wish the oldest men to be understood here: it is generally understood now that those who are considered to be of a sanguinary type of body endure hunger better and longer than choleric individuals: since in the former the humors which nourish the body are present in greater abundance, their temperature is moderate and less burning because mixed with moisture so as to be more mild. But in the latter everything is thin and dried and lacking in moisture: then too who can doubt that catarrhal persons can endure hunger best because they abound in moisture more than is proper? When all this is noted no one will be without counsel who desires to try this method at whatever age and however he be constituted and each one may know how the diet should be lessened and how extended and when hunger should be induced more vigorously and when food should be given more generously to the sick man: and not only this but also when guaiacum should be taken in larger or smaller quantities: although on this point I think there should be little distinction made because this decoction is not, as I said likewise in what has gone before, of a nature to cure suddenly or to hasten recovery with a rush but to have its effect slowly and gradually, almost imperceptibly so that I do not think any one ought to fear whether it be administered to an old man, or to a boy or girl, lest too much be given, provided only that no one go too far beyond the limit that I have prescribed. So far am I from advising that more be given to stout people than to thin. Celsus moreover says that there is a difference between a strong body and a fat body and again between a slim one and a sickly one, for the more slender abound more in blood, the stouter more in flesh. This is a matter which often deceives the doctors as I have noted happened in my case inasmuch as they immediately think that a slender body is sickly and a tall stout one strong. Now I think this caution ought to be noted in passing that my father when he was almost 60 years old recovered by the use of guaiacum, suffering no severe inconvenience and observing this diet rigidly while in the meantime he took no advice of any physician and did not even see one but used only my directions.

CHAPTER XIII: WHETHER ITS USE IS THE SAME IN ALL LOCALITIES

In this connection I know the question is raised whether we are to believe that guaiacum has the same use and the same advantage everywhere and since in particular it is a foreign product, whether it is to be considered as suitable to Germans as it is to Spaniards and those people who live moderately and then to all others whatsoever. For it ought

not to seem dubious that as in other matters so in the administration of this medicine also some consideration should be taken of the nature of the locality. For just as the time of year must be considered in this treatment so it seems that the state of the atmosphere must be taken into account. Not only for various other reasons but because we stand hunger one way in a thick atmosphere and otherwise in a clear one. On which point I leave the rest to be sure that pertains to the matter to be more carefully weighed by the physicists. But I will allow no man to be ignorant of the things that I have learned myself so far as they seem to apply to the Germans. In the first place then, the Spanish investigators think that this medicine in this sickness is uniform everywhere as well because it contains nothing that would make it impossible for all men to use indifferently everywhere as because it has been found out by experiment on men of five very different races. Of these races it came first to be sure to Spain from Spagnola while all other nations around were aroused to curiosity about the result: when it turned out that many used it with happy results the Sicilians accepted it. Then it went over into Italy and immediately we Germans ourselves also learned its power by experiment. Recently I have heard that among the Gauls also many are recovering by this help. Since we have learned this to be true and since we live in an atmosphere which is not harmful to this disease, like that of Italy or Spain or regions of such clearer atmosphere so that we should be less in fear of those evils which may come from without like fevers, pleurisy and things of this sort and furthermore since our bodies are strong and enduring of toils and finally since the minds of the Germans are more happily affected than those anywhere else by thirst and hunger, what else are we to think than that our atmosphere is most suited to this cure and that our citizens are the most adapted to it? So claims Paulus Ricius, a doctor of sane judgment and sound and unique learning, asserting this in addition, that he has learned this by experience that no nation is more adapted to the endurance of this diet. But if we had not happened to see very many men in this country restored by guaiacum and if even now the experiment was to be made by us, nevertheless we could not believe that this country lived under such hostile divinities as not to receive this cure. Or when it retained its power in being exported from Spagnola into Spain and shared its native beneficence with a people so foreign and different in character would it wish to defraud us of this help as being inferior or would it scorn to be brought to this particular place without changing its character and would it suffer that potent curative strength and virtue to be removed from it when it traveled for the Germans alone? Indeed

this help has been found most immediate here, perchance even more immediate than anywhere else. Furthermore our citizens although in other respects they are most devoted to drink, still beyond any doubt will if it be necessary endure hunger and thirst strenuously and for the longest period: furthermore our bodies abound in warmth and on this account are strong: for as appears to Aristotle those who live in cold countries abound in native heat and those who have most heat abound most in strength. Therefore when I consulted Ricius recently as to whether it seemed to him that because the Germans were accustomed to fill themselves more generously with food some reduction should be made in the treatment in the matter of this tenuous diet he said, "Not at all." And he added this, that not only would one of those Germans so heavy eating and so accustomed to drinking indulge himself more freely than a man of the Italian race but that he would also treat himself more rigidly and with much more abstinence and he himself said to me that recently he had tortured one of those fat fellows with starvation ten days more than was regular, that there might be nothing remaining to delay the operation of guaiacum. And such things indeed I recall about Ricius and I speak more often about Stromer that those who read may know what men I think ought properly to be called doctors and how much I believe that these common torturers should be rated below the dignity of this title: and that foreigners may see that Germany herself has also sane doctors and that all may learn that I am as much devoted in enthusiasm and friendship to those who are good and most learned as I am possessed of hatred toward those generally ignorant alike and wickedly rash men who when they have bought the title of doctor at once profess that they can raise the dead and restore life to those who have been buried. But I return to those two who are qualified far above this rank. The latter of them, when I asked him last year for a medicine to purge my bowels said, "Do not torture your stomach with poison at your age in which it is easy for nature to accomplish everything in better fashion;" the former just as he was very reluctant to administer medicine, at the same time forced the patients that he was treating to come under a most rigid regulation of the diet. Wherefore when he received a certain man to be treated in this line at Augsburg and the patient announced that he was afraid that he could not restrain himself from the practice of passion, he said, "Since then you have determined to die you do not need me to help you in it," and he dismissed the man as being too intemperate to be able to hold himself within the bounds of his prescription. To these I add two others themselves of excellent reputation, the first one of your doctors, oh best of emperors Albert, Gregorius Coppus who has

helped me not a little in my writing: the other Jacobus Ebellius who lives in the court of the Archbishop at Colonge and who four years ago was of such authority that the Public Hospital was assigned to him with the consent of all the most learned doctors there. He was formerly held in the greatest admiration by the most learned men at Pavia where especially this learning flourishes, not only because it is agreed that he is an excellent man in medicine but because he has joined with that profession most marvelously the best literary equipment.

But this is not the place to make a catalogue of the most learned men but my plan is to bequeath to literature my experience with guaiacum: therefore I repeat here as an epilogue that I very strongly believe that it is of equal healthful advantage to all men wherever they were born or have lived.

CHAPTER XIV: AS TO WHAT TIME IS TO BE SELECTED FOR THE TREATMENT

That it is better to try this treatment in summer than in winter may be gathered in this way; in the first place because as Galen thinks the liquids at that time spread and distribute themselves over the whole body and they flow backward and forward and therefore the bad humors can readily be separated from the good and in this way the bad may be expelled and banished but the healthful and the good sustained: then because it is believed to be a fact that all illnesses strike deeper roots in winter and cling more tenaciously but that in summer on the other hand the humors are in motion and the body most susceptible to change. But these considerations are to be taken into account in general in all treatments: those which have to do in particular with the guaiacum cure come from the fact that great help is sought in this treatment from hunger and light diet: therefore in this one direction it proceeds better in summer than in winter because then it is more suitable to go without food inasmuch as the body, under any circumstances hot and feverish, is easily reduced to disease if loaded with food: or else because as Hippocrates writes, the native heat within is abundant in winter and is deficient externally because then, due to the pressing vigor of the cold without, the heat retires and withdraws into the inner body as into a citadel and hides there, whereas in the summer on the other hand the heat in human bodies seeks the related air as Aristotle thinks and spreads itself and scatters without. But it is the property of this medicine to bring back the lost heat into the body and for this reason it seems unfitting to try to experiment in winter because they think it is dangerous then in case the heat of the extremities is induced inwards and the strength of the limbs without is too much reduced and exhausted

especially in persons who by nature are cold and in whom under any circumstances during the winter time the body heat is practically extinct and the body is numbed by the force of the cold and likened to a corpse. But at this point one should by no means overlook the advice of Coppus that since guaiacum starts perspiration thus driving out the body humors and relieving the body of nocuous moisture, the summer is the best suited of all to this operation because the humors are then finer and the skin more open: on the other hand the passage ways for the sweat are obstructed in winter and the humors in the body thickened. To look at a different and quite opposite opinion since in the treatment of guaiacum the patients suffer nothing more than thirst and since this attacks those who fast more vigorously in the summer they think that the patient refrains from drink with the greatest difficulty in summer. Therefore in Spain and where the heat is very violent in summer they have practically not ventured up to now to try the treatment in that season. In addition phlegm is produced in the winter and is increased on account of the larger consumption of food at that time as Alexander of Aphrodisium believes: but in this treatment in which starvation is advantageous this can be avoided if it is undertaken at that season. This then can be said about those two seasons of the year which bring the more intense cold and heat and of those which come between: the autumn may seem to be the most ill suited because then is the greatest crop of all diseases and the humors of the body are moved for the worst; because I think this season is inordinately uneven and never consistent and therefore induces manifold diseases: furthermore Celsus says "The autumn kills the largest number of people": because the Gallic disease most of all affects the sinews and the same authority teaches us that winter and autumn are least useful for treating every sort of resolution of the sinews. But these arguments are those of the men who argue in general not of those who discuss the use of guaiacum alone in medicine; therefore this is my opinion that in Germany at least it is better to choose the summer but especially the beginning of the summer when spring is just ending which would be say in the month of May because the heat is not so great then that the patient cannot endure thirst and the cold is most intense in winter; and likewise in spring proper and in autumn it is more violent than the patient ought to bear in this treatment since it is one of the first concerns that one who has been restored by guaiacum should avoid all cold with great care. But as to those inconveniences which may come with the summer I have already stated why they are less to be feared and I will state it again in its proper place that this drink in marvelous fashion rouses the native strength and lest any one presume greater knowledge than one may have after the

cure it has great power to rouse and restore to strength the body which has been weakened and exhausted by lack of heat. Unless these things were as I have said and as Hippocrates said in a certain place if I remember rightly that spring and autumn are the best times for cutting veins and making use of drugs then the advice of Celsus would seem best that spring is the most salutary time for undertaking treatment, next to spring winter with summer more dangerous and autumn by far the most dangerous of all.

CHAPTER XV: HOW THE PATIENT MUST ABSTAIN ENTIRELY UNDER THIS TREATMENT FROM WINE AND SEXUAL INTERCOURSE

And should I not venture to say that this medicine comes to us as a divine gift when it removes the disease only as one begins a pure life? And since, as Christian doctrines hold, we are reconciled to God by two virtues in particular, chastity of body forsooth and abstinence from food and drink, let him know whosoever has not bound himself firmly with these two chains not only that he will approach this treatment in vain but that he will not pursue it without danger: so much so that it has been learned that whoever has intercourse before the fortieth day after beginning the treatment must necessarily die, either because he cannot stand the strain of intercourse or because God wills it so, in order that no one may use so great a benefit in unholy fashion. And so of all those who have tried guaiacum in Germany one case so far has resulted in death and those who were present assert that it was because of this fault. The next most dangerous thing in this treatment is taken as generally known to be the use of wine, naturally to be avoided on other grounds in this sickness because it loosens the bonds of the body and relaxes the sinews; and since its power of penetrating the limbs and shaking the body is immense, they think it impossible for the decoction of guaiacum to accomplish anything in the body of one who uses wine; and not that only but when two things so very diverse have met in this treatment they say that danger and the fear of death is at hand. Wherefore there are some who advise abstinence from wine for a whole month after the accomplished time of the cure itself, since this medicine pursues the course of its effect for many days after the actual taking and in order that nothing may obstruct it or any impediment occur they forbid the use of wine. Furthermore, whoever avoids intercourse he must remember to put nothing in his gullet to act as an incentive to it. So goes the old proverb: "Hunger never produced adulteries," and another: "Without Ceres and Bacchus Venus grows cold"; Aelian writes that Zaleucus the lawgiver of Locri prohibited

wine for sick people except by the doctor's orders under penalty of death. If all this were not so, that even from its nature guaiacum does not suffer intercourse and abhors wine, nevertheless the books of the doctors are full <of indications> that intercourse is most inimical to a body infected with a disease of this sort because the joints are always badly affected to the greatest extent. Therefore Celsus states that certain men with diseases of the joints when they had refrained for one year from wine, mulse, and intercourse, won complete security of life. And he also gathers that such disease rarely attacks either eunuchs or boys before they have had intercourse or women if their menstruation has not been suppressed. This ought not to be overlooked which is found in the problems of Alexander that those who drink water are more keen in all their senses than other men; for wine especially obstructs the courses of the breath and dulls the senses. And Cicero says "Since wine is rarely advantageous to invalids and very often harms them, it is better not to administer it than in the hope of doubtful help to incur obvious danger." But in any sort of man whatever intercourse chills and dries the stomach, as Aristotle bears witness, since in cohabitation heat is drawn forth and, from the evaporation which occurs there, dryness results. Behold sobriety and chastity the two most sacred institutions of life, the chief observances in this matter, the chiefest precept, the crown of the whole, apart from which there is nothing to fear: for as to the avoidance of other things in this connection there need be no such terror because they do delay the medicine to be sure or even entirely obstruct it, but they do not lead to danger of life.

CHAPTER XVI: ABOUT NOT USING SALT

Amongst these directions what is said about salt has worried some people, why its use is forbidden during the period of this diet when at other times nothing is said to be more healthy for the human body and they say they do not understand why harm can come from salt in this sickness which develops entirely from corruption of the blood and its putrefaction inasmuch as salt especially is a preservative and a preventative of both these things more than any other substance. Furthermore salt is an astringent and has a drying, solidifying and purging effect all of which men have thought should be chiefly sought and necessarily applied to the eradication of this disease: in the first place because the body is then weakened and shattered: in the second place because the humors are broken down into flux; finally, and this is the chief argument, because the blood is vitiated and foully infected and is held to be totally impure in this disease and because this sickness is nothing else than a certain changed condition of the body brought about by the disturbed blood: just as when sedition has invaded some state and

the ignoble crowd rages at heart and all the bonds are burst and removed and nothing hangs together, nothing stands firm, nothing is consistent, there is no peace, no quiet, but all things are confounded. This change of the body, the disturbances of the members, and the racking of our frame, all of these confusions . . . . a certain man with overpowering prestige because of his piety and merits an old man and wise and of outstanding authority in the state who as Virgil says "rules the hearts with his words and softens the breasts": so they say salt mediates with all these disturbances of the body, salt which can settle what is disturbed, unify and bind together what is divided, hold in bonds that which is distracted, tranquilize what is in confusion and bring peace and security to everything by its astringent power as I have said and by its virtue of drying, binding together and purging. How great and how necessary Pliny thought the effect of salt to be is seen when he says "Without salt the more civilized life cannot be lived." Therefore they say "How then can that which is altogether salutary elsewhere produce any damage in this illness? And inasmuch as in this treatment the greatest care is to be given to avoid any abundance of evil humor whereas salt resolves all unhealthy moisture and cures it and checks all flux in the body it is likely that salt should be used more abundantly in this treatment than elsewhere." But a different reasoning must be applied to this use; and first of all as to what applies as a whole to this disease and as to how the patient must restrain himself from the use of all salt things but especially from those which are most abundantly sharp, we must seek information from those doctors who have already in the past most fully investigated the matter: for the present, as far as the investigation of the use of guaiacum goes, we may say that although all men know that in any of their sufferings of the sinews and from those diseases which produce sores because of bad blood and those which originate from yellow or black bile, or from salt rheum, the use of salt except in the smallest degree is bad because by its own power it increases the strength of the bile and burns up the blood and by its own dryness serves to dry up the humors of the body and therefore distracts and destroys all the helps to sound health, nevertheless in the administration of guaiacum they forbid the use of salt entirely on the same ground that they forbid all other sharp substances that readily penetrate and amongst them aromatic herbs and wine because all things of this sort by their own sharpness and penetrating strength open up all passageways and have a pervasive effect so that as this increases there can be no possible place for the power of guaiacum to be effective. Now if this reasoning fails to satisfy any one I would say to him what the physicists say about the magnet that if it is smeared with garlic it does not attract iron since there is some such hidden power not yet

sufficiently understood in guaiacum and especially this property of abhorring the use of salt so that it is destroyed when salt is introduced. So much at this point about avoiding the use of salt; now about that matter on which the whole reasoning of this diet depends how the body is to be emaciated by scantiness of food and starvation.

CHAPTER XVII: CONCERNING THE NECESSARY LIGHTNESS OF DIET AND STARVATION

And concerning lightness of diet and removing food from the patient and inducing hunger, although I have spoken of it before I think I ought to give warning again at this point; not to be sure because there is any other reason for it than that this treatment requires an empty body freed from all repletion but that I am sure that there was a certain method even among the ancients of curing sick persons in this fashion. We may read in Diodorus that the Egyptians treated their invalid patients either by starvation or vomiting. For they claimed as did others that diseases are produced primarily by too much food and that therefore that is the best treatment for renewing health which removes the causes of the disease. Therefore certain men should cease to endure with impatience this diet, I mean those drunkards and intemperate men given to drinking for whom as Persius says "the sum of happiness is to have lived with a well greased platter," to whom it is the greatest torture to live for even one half day without food, "whose god is their belly," as he says, and for whom "both art and life consist of stuffing," since so great a benefit is to be won by such little effort with the removal of so great a misfortune. And let them cease to insist that danger may come from the weakness which hunger induces as if any one who dines as they do could ever give out when Pliny says that no one dies of starvation within seven days and that most people last even beyond the eleventh day and when Albert writes that in his time there was a woman in Germany who sometimes went twenty whole days without food and often even thirty: and that he had seen a man who had gone seven weeks without food drinking water on alternate days only: and again Pliny says that he found that the Scythians sometimes lasted twelve days at a stretch in hunger and thirst simply holding certain herbs in their mouths: they say that Ammonius the Christian philosopher never ate anything but boiled bread. If any one will consider this and remember what is handed down by the historians that some of the magi never took anything for food except corn and vegetables and that Diodorus writes that herbs and roots were the food of the ancient Egyptains and that Hesiod advised that one ought to live on mallows and asphodel with which diet likewise Plato recalls in the

laws that Epimenides was content for a long time; if any one brings this to his mind I say and considers it he will find then that we live very well on this diet and that we eat almost more than is necessary. But if it were a great thing to abstain even a little from food who is to such an extent his own enemy as to think that his safety is to be compared with this discomfort or not to prefer to endure hunger for thirty days rather than illness all his life or rather to go hungry so many short days that for the remaining time of his life he may live safe and sound rather than be tortured constantly with great pains and to run with poison and filth to escape a slight discomfort? I have said moreover that this method of treatment is not new for the best doctors have always prescribed abstinence for their patients among whom Asclepiades as Celsus tells us professed that he used it as the chief remedy in fever itself "thinking that the strength of the patient should be reduced by light, by keeping awake, by great thirst, so that he did not allow him even to wash his mouth during the first days." "Continence" says Eusebius "preserves the strength of the body and the purity of the mind." By this reasoning it is recognized that moderate and temperate diet is good for the flesh and for the spirit on the testimony of Timotheus who when he had dined once with Plato and he after his fashion had put food before him is said to have turned to his friend and said "Those whom Plato has received at dinner will be well off for the future." Probably implying this, that too much repletion or variety or abundance of courses and those foods with condiments are followed by the pangs of indigestion; so when afterwards he happened to meet Plato he said "You, oh Plato, dine well for the following day rather than for the present." Furthermore in Lucian the Pythagorean Gallus imputed it as a great kindness on the part of the gods toward Mycillus that he always knew how to repel every fever by starvation and for this reason . . . . Now how are we to consider this which the divine Jerome writes that "certain ones who have suffered from diseases of the joints and gout have recovered under prescription of good doctors when reduced to a simple table and common food." "For" said he "they were freed from the worry of managing their home and dispensing banquets which break down body and soul." And a little later, "Nothing so overpowers the mind as a full and raging stomach which turns hither and thither and breathes forth into belching and rumbling of wind." Furthermore to how many will that story be a proof which we read about a certain heavy paunched and fat abbot? While he was being carried to a hot bath he met a certain noble who inquired where he was going and the abbot answered that he was going to the bath. Then he asked why and whether he was suffering from some sickness

and the abbot said that he was not suffering from any sickness except that he was seeking an appetite for eating: that he had recently lost this and to recover it was going to the warm waters that were useful for this remedy. Then the noble said to him: "But I am a better doctor myself in this matter," and he took off the abbot and put him in a certain deep and dark prison for some days and tortured him with starvation. Afterward when he asked him whether he had an appetite for food and he admitted that he had, he said: "It is right to state then that you should pay me the price for your cure," and he fined him 200 gold coins and sent him away healthy and with such an appetite for food that he could eat even beans and vegetables when before he spewed out all the most delicate foods. A fine act toward one who did not seek good by being hungry but sought hunger when he was stuffed full. But more of these things perchance than there should be. Therefore let us turn to other things if only first in closing I say this that the medicine guaiacum requires a stomach in which no variety of foods causes tumult in the intestines, which has not been filled rashly and which is free from all vaporous indigestion.

CHAPTER XVIII: HOW STARVATION MAY BE EASILY ENDURED

Now this paucity of food can not only be endured but even endured easily because of the power inherent in guaiacum to preserve life when the strength of the body has been weakened and to enable the patient to go without eating at all. Therefore I have been right in advising that as far as possible the patient should abstain from food and that if he fails he should be helped not with food but with the means that I have mentioned: by presenting to his nostrils odors as potent as possible and especially that of hot bread. But if anybody perceives that he is entirely weakening and collapsing so that he must have help, although I do not know how this could happen to any one when in my case surely nothing of the sort happened in such circumstances, I would advise him to have recourse to those things a slight taste of which Pliny thinks soothes hunger and quenches thirst, namely butter and licorice, or else he should follow Celsus who says: "This is the one thing which should always be observed in every case, that a doctor sit by from time to time and observe the strength of the patient and as long as strength survives should fight with the weapon of abstinence: if he begins to fear weakness he should help him out with food." Unless someone should prefer to follow this advice which Gellius says Erasistratus wrote, how the Scythians when for any reason they must endure hunger for a rather long period confine and bind up their stomachs with bandages very tightly; by this compression of the stomach they believe that hunger

can be driven off or endured more comfortably; for, as the same author states, hunger arises from an empty condition and this is brought about by the spreading fibers of the intestines and the hollow gaping emptiness of the stomach within, but this space is filled when the stomach is drawn together so that the vacuum is closed up and there cannot be hunger where there is no vacuum and fasting is readily endured. Although why do I say "fasting" which does not exist in this treatment? I might call it "hunger," this very slight matter which some people find it hard to endure; for it is tolerable even if one summons within no help from elsewhere. But what can be light to those delicate patients when they are not only intolerant of hunger but even consider it unbearable not to seek food? If these are ever sick the mortal gods ought never to be implored to make them well since they consider it something intolerable to buy health at so slight an expense; about them I shall be acting in my own character if I admonish them more at length, especially when I see that in our Germany the greatest number suffer from this error.

CHAPTER XIX: AGAINST LUXURY: IN PRAISE OF PLAIN LIVING

Would that almighty God might cause this nation some day to know itself, not so much because it is unworthy for a people that rules the world to live as they do, but, what is often the very greatest of our great misfortunes, this excessive drinking is everywhere the cause of the greatest contempt. Some people, indeed, if they eat and drink as much as they can think they transgress the law of nature: we when we have gorged more than we can endure, even look for commendation: for what else is the meaning of those drinking bouts, those contests in which the man who drinks the most is especially applauded by the guests? When it is a glory to conquer in drinking and sometimes no disgrace to be drunk and to vomit? Oh my country, Oh my empire! I care not for those Poles or any other peoples that are even more drunken than we: I say that this nation should take account of its dignity, unless it be credible that the other nations have yielded to our empire in mockery at us rather than through reverence and esteem for the valor of our ancestors. Surely they to whom this honor was paid were quite different from these who are so scorned: it must be so. Or is there any child in Italy who distinguishes us by any other name than that of drunkard? Since therefore we are such men that our outrages come to the lips of foreigners sooner than any suspicion of our culture to their minds, shall we not either change our manner of life or else without shame repudiate that honor as unworthy? Or are we not afraid that sometime the result will be that we shall

lose the title and fruit alike of empire with shame greater than the glory with which we received the duty of empire voluntarily given us? Then forsooth when (Germany produced) those sober men who were transcendent in reason (the other nations yielded to our rule; how are we now going to compel them) to suffer subordination to a drunken and uncultured barbarism? So if it does not come within our powers of sense to recognize ourselves let us at least recognize at last our danger; and if we do not think enough of the loss of our glory and the disgrace of our spiritual being to choose not to live an abandoned life, at least let us be wise to this extent that we retain the health of our bodies which, in the midst of these banquets, this drinking, and these bouts, around which as the satirist says dance in serried ranks all kinds of diseases, cannot but be afflicted and wretched. But Germania has lost its mind and forgets itself not in entirety to be sure but in the person of most of those in Germany: these are the ones that prolong lunch into dinner and dinner into the depths of night; these it is because of whose outrage a foreign poet, not with ill will even though he seems to hate the bad, has sung with deep disgrace to this country: "Bacchus reigns in the citadel, Apollo is neglected and languishes; here to live is nothing else than to drink." Although those drunkards who wander in madness might be scorned but these who have plunged themselves headlong into a sea of pleasures, dining luxuriously and clothing themselves softly are rightly rated by the common hatred of all; these are the ones that lie stretched out on piled up couches and consume everything that can be acquired by land and sea not to sustain life but to please their gullets; who clothe themselves only in the finest linen, whom purple drapes, who wear the skins of the most tender little mice not to ward off the cold but because they delight to be delicately clad: these are they who are offended by the touch of common rags, who seek silk from abroad, whose skin cannot endure any fleece but Milesian or whatever is softer than Milesian; who consult at drinking parties and drink at consultations, who do no serious business but pass all their time at banquets. Such things are not, I repeat, universal in Germany, but they exist, and what should shame us most, generally amongst the heads of Germany. Those nobles who stuffed with daily dinners accomodate themselves to those pontifical banquets and weaken themselves with those gluttonous drinking bouts whence they will not suffer themselves to be dragged before they have consumed all; the scope of whose life is indulgence of the stomach, against whom alone if ever he had suspected that there would be such beasts in Germany Sallust might have made his remark: "Many mortals devoted to the appetite and sleep, unlearned

and uncultured, go through life like travelers." But let one consider what opinion the Romans had at that time of the German peoples and hold before one's eyes what a hateful monstrosity might have been considered the indulgence of the gullet which is ours today; and when in this practice we have passed a large part of our life and have reaped from it what necessarily follow this type of life, I mean innumerable kinds of sickness, then we do not recognize our own fault but even accuse God of cruelty, and when we ourselves at such heavy expense and such great outlay have prepared the seeds of diseases and are actually nourishing our own destruction and at the expense of our patrimonies are cherishing diseases, when we are infected in hands and feet, we accuse nature and impute to God our illnesses. For these gluttons of ours do no otherwise than those in Juvenal who "think that disease is sent into their bodies by a hostile divinity and consider illnesses the rocks and weapons of the gods." And would that we might some day return to those porridges made of oats and clothe ourselves in those woolen coverings that served for garments that expressed each limb, so that we might be ashamed of this silken wear and pursue with hatred these infinitely involved togas. For what else are all these things than, in the first place, the destruction of our patrimonies, in the second the begetters of diseases as well? Our ancestors to be sure while they followed the utmost thrift, achieved the greatest deeds with great glory. We who sate our affectation of pleasure and use poison also for food, for how long have we done nothing worthy of Germany! It were better to be called and considered barbarians in that meanness of life of those days than to take the palm in this luxury and disgrace of soul. What then would Charles the Great say if he should return to us and should see our leaders wearing that top garment of cotton while he wore that leather undershirt or one of those Othos who exercised their valor in dust and mud, while the men of our day smear themselves with ointments most exquisitely prepared? Noteworthy is the malediction of Chrysippus against those who used ointments for the incentive of lust and unnatural pleasure: "Curses on those wantons" he says, "who have brought ill repute on so fine a thing." And once it was degenerate peoples who did this, nobody suspected that the Germans would ever smell of unguents: but now we have learned to use thyme and myrrh and ointment and every kind of perfume as though it were a necessity of life and we smell most ambitiously of those exotic perfumes. Nor do the women only err in this matter, but men also, especially the princes and priests. But in his little Greek state Solon forbade the sale of perfumes and the Spartans drove the perfume sellers from the state, saying that they

adulterated the oil. Amongst these same people Socrates in Xenophon attacked severely that sort of luxury. Surely all pursuit of pleasure was alien to the ancient Germans and they considered soft living of any sort especially foreign to themselves. I have heard some old men saying that when they were young the toga was looked on with suspicion while we today worship the purple. And so, oh depraved age, they clothed themselves in the unadorned hides of wild animals and passed the nights under the sky and in camp and strengthened themselves with toils while we are softly clothed and take our pleasure under foreign wrought frieze and every sort of luxury weakens and destroys us. And one might hope that this way of life in Germany might readily have an end though the model for it comes particularly from those who are called priests: these not only in gatherings and sacred feasts but each in his own house swim in swamps of platters and call it life to eat and drink, or if they do not call it so at least so think; and thence others think that nothing is forbidden them since these behave so. Hence it comes about that their native and genuine character is exiled by the Germans and our characters here have degenerated to such a degree that we can challenge all the most abandoned peoples in luxury. Rather we ought to drive those manners into exile and say to that foreign luxury as Diogenes said to the cake: "Oh stranger begone from here quickly;" for at length we ought even to educate foreign manners and since today the most royal act is considered that of drinking most profusely we ought to listen to the response of the philosopher Menedemes when Antigonus asked him whether he should go to a luxurious banquet: "Remember that you are a king's son;" or to Antisthenes who when someone was praising luxury said: "May my enemies live luxuriously." The wise word of Paul should be written on our hearts: "Food for the stomach and the stomach for food, but God will destroy both the one and the other." He also when he had condemned the works of the flesh, amongst which he had placed drunkenness and gluttony added: "About which I tell you as I have told you, that those who do such things will not inherit the kingdom of God." But those now do those things who ought to be our guides to the Kingdom of God, the priests, the canons, the bishops, and the archbishops to such a degree that it is a proverb throughout Germany that whoever would live pleasantly should be initiated into the sacred rites, as though this life especially became such. The simplicity of my grandfather Lawrence Hutten that deserves a place in literature should be a great incentive for us toward seeking glory: though he was a man of rich estate and engaged in the great affairs of our leaders both at home and abroad he never admitted to his home either pepper or saf-

fron or ginger or any foreign condiments of this sort nor was he accustomed to wear any other clothing than that of our native wool although valuable raiment was sometimes presented to him because of his achievements. And this was not only his own practice but he used to attack the customs of men with great vituperation to his fellows saying "As though there did not exist among us the wherewithal to season our food if we needed to entice our gullets or as though the value of bodily clothing was proof of the quality of the mind." But I will cease to speak of that man lest I seem to arrogate glory to myself, saying only this first that I believe there is no other equally glorious ground for boasting in this family as that of being born the grandson of a man who lived as he did. And indeed our ancestors and those whom we as boys have seen in their old age, since they so dined and so clothed themselves were of sound bodily constitution, hardened against hunger and thirst, cold and heat, by the endurance of toil while we at the very first frost draw in our hands and feet, and right at the beginning of winter protect ourselves with triple hides or bury ourselves in those hot rooms whence we do not emerge until midsummer when the sun is torrid and burning everything with its heat; while I say, not one out of ten of the nobles in Germany can be found who does not suffer from gout or is not tortured by the disease of the joints or beset with dropsy or cursed with hip disease or leprosy or that Gallic sickness which brings the most misfortunes with it. At length therefore let us return to our real selves, let us pursue that life which is worthy of this nation and this empire! Which life even those who, like the ones I have noted, live too softly suffer nevertheless to be praised in their presence: for I believe there is practically none of them who, even if with all his might he pursues a degenerate life and lives most indulgently in luxury, does not however hate such a life in others; unless there be someone so blinded by incontinence that he loves those abandoned characters—those Sardanapaluses and Heliogabaluses—or hates the thrift of many of the opposite character; surely virtue is lovable even amongst those who put it behind them. The old condiment of Cato was a pottage mixed of cheese and eggs; moreover Pliny reports that porridge made of oats was in truth the food of those ancient Germans as it is of many today; but we dine on food from across the seas with such a belief in its necessity that every father of a family everywhere is determined to sell what grows here and buy those other things. This is the one thing that has enriched the Fuggers who, while we so care for our bodies, alone in Germany have money, alone have splendid houses and magnificient buildings; for these ministers to our pleasure have

grown so great that their wealth is rated above that of any one of our princes. To such an extent do we go abroad, to such an extent do we ignore what Germany alone produces. Wherefore I think that the wisest man was any one who in the former times feared this luxury for our nation, these allurements of life wherein fester so many pests, so many diseases, while all men see clearly that those who go without these luxuries with equanimity and who season their food with our herbs, for there are some still in Germany, live safe from these ills and with the healthiest possible bodies, while those on the other hand who have fingers smeared with saffron and who belch cinnamon and breathe clove and luxuriate in fine clothing, are subject to all diseases everywhere. How appropriately then the Satyrist calls gout "rich" because it flees the poor and abstemious, but clings closest to the rich, the drinkers, the drunken and the luxurious who as the same poet says "search everywhere meanwhile for the seeds of appetite." Therefore although this land produces in plenty the necessities of life, nevertheless as if abandoned by nature they flee to foreign countries seeking clothes and food and medicine from the Pillars of Hercules, from the island of Taprobana, from the Ganges River or lands that are further off and almost from the source of the Nile. The gods should be angry at those now dead who first brought this pest into Germany: for they did a thing unworthy of the German dignity: for not such were those ancient Germans as all good men should bitterly complain with me and whosoever "considers the miseries of Hercules and his cruel labours more to be chosen than love and banquets and the couches of Sardanapalus." But oh Christ, how delicate and healthy a food is bread made from wheat or white flour, or of millet or rice ptisan or oatmeal porridge. Add to these so many kinds of vegetables, add the condiments of the garden, anise, coriander, cummin, fennel; add mustard, carrots, onion, peas, garlic, and parsley which if we believe Pliny should have special favor as a condiment, and, as drink, beer; add for the wealthy wine, the simple and pure drink of the earth, as Apollonius knows; and let this be drunk sparingly born either in France or on the banks of the Rhine; add the flesh of our native animals, both tame and wild, of a flavor by no means unpleasant; nor are the fruits of the trees to be scorned. How rich is Germany, how it abounds in the food of life, how abundantly it furnishes the necessities! My greatest prayer is therefore that never may they be without gout or the Gallic sickness who cannot do without pepper and may they be forced in the future miserably to endure hunger who now seek not food whereby they may live but those luxuries with which they may tease the gullet and invite the

appetite. And how righteously does Galen begrudge them when he forbids the doctors from treating drinkers and gluttons if ever they are sick: "For" he says "by the intemperance of their lives, they quickly pile up the crude humors so that it is to no purpose that they are evacuated." "The requirements of nature" says Jerome "are quickly satisfied, cold can be driven out by simple clothing, hunger by simple food." Artaxerxes, king of the Persians, was once reduced to the necessity of eating dried figs and barley bread and when he contemplated the variability of things and his own fortune he said: "Of this sort of pleasure my royal wealth had left me in ignorance." By which example we may see that those who live frugally and soberly alone walk in the light and realize that they live; those who on the other hand indulge their bodies and gorge everything, wandering as it were in certain shadows, do not perceive their own life; so far are they from living happily although they sense it a little later when they have fallen into disease and then indeed they begin to realize what life they have chosen and with what reward. For, as Persius says: "When stony gout has broken down their joints like dead branches of an old beech tree, then they groan that they have passed gross days and that their light has been fog and too late they moan for the life they have abandoned." Can we therefore doubt what is for Germans the cause of so many diseases when we remember besides that these distresses of the body came in with this luxury? For we are so zealous in this gluttony, in these luxuries, that we seem as though with a prize set before us to strive with other peoples abroad for the leadership in shameful living. And we have for this purpose certain not unskilful ministers: these convey to us incentives to the gullet sought out from the ends of the earth; these import from abroad with marvelous zeal what we may eat and drink and wherewithal we may be clothed. And while they have been doing this for a long time with great advantage, as I said before, to themselves, they have made some men so fastidious that while they live here they drink Corsican wine and eat food brought from Italy, but on the other hand when they are in Rome they use wine that originated on the Rhine or the Neccar. Oh perverse habit of life! Oh behavior worthy of hatred, especially because it is the bishops who behave so! Such men as I believe wish with that Philoxenus in Aristotle that the gods had given them the throat of a crane. Aristophanes scores the tables of the Syracusans and the luxuries of the Sybarites; his own times suggested this to him; but, if he were living now, with what words, with what genius could he sufficiently score our meals, our filthiness, our drinking bouts? Let all those therefore who wish to excel in virtue and genius listen to Pythagoras who says

that man can have no high thoughts, that is an incontinent and luxuriously dissolute man, while he remains in that life, can do nothing with his genius, cannot use his mind at all. "Simple food" says Pliny, "is most useful to man; the piling up of sweet savors is disastrous, and condiments are very dangerous." Persius recognized this when he raged: "You pray for help for your sinews and a body that will last to old age: well, granted, but great platters and rich cakes forbid the gods to grant these and hinder Jupiter." In Cicero, Cato says: "A lustful and intemperate youth bequeathes a worn out body to old age." And he also advises "Take only so much food and drink as will renew the strength not overwhelm it," and he thinks that to the mind of man which he calls a divine grant and gift "nothing is more hostile than pleasure, for when lust is master there is no place for temperance nor can virtue stand at all within the realm of pleasure;" and he thinks that great gratitude should be rendered to old age which makes us cease to want what we ought not to desire: "For," he says, "pleasure obstructs wisdom, is the enemy of reason, and closes the eyes of the mind, nor has it any commerce with virtue." Therefore he thinks it is well with old men because while they lack banquets and heaped up tables and repeated drinks, they meanwhile lack also drunkenness and indigestion and insomnia, which follow that indulgence in luxury. "Sicknesses are roused by too much satiety" says Jerome. This is a familiar story of a certain doctor of our own country that while he was treating a certain invalid who was suffering from old running sores on his legs and he, though he was addicted to drunkenness and drank mightily, none the less complained that the medicines did him no good, that his ulcers in fact ran much worse than at the beginning, the doctor said "They will stop running if you stop pouring in." Galen says that "athletes whose life and art consists of stuffing cannot live long and are not sane and that their souls so involved in blood and muscle as if with mud do not think of anything heavenly but only of meat and belching and the filth of the stomach." The ancient Romans called a table necessary that was slight and frugal. And among the Greeks light eating has been sung in the works of famous men. The Essenes, a certain sect of philosophers among the ancient Jews, are praised by Joseph because "they had turned daily hunger into a custom and second nature." The sect of the Pharisees too professes continence. Whoever wished once to destroy us he I believe brought down this kind of living on us by a curse. And so while Marcus Cato, as appears in Pliny, was seriously afraid that the Greeks might invade Italy with their effeminacy and their luxury, who of our ancestors saw to it that none of their condiments should ever be sold in Germany? Perish pepper, perish saffron, and perish silk! Or if there be use of them in

other races at least may this nation be ignorant of them or never see them. But may the all-blessed Christ put into our people this purpose to recall themselves to the frugality of the ancients and to conform to the thrift of their ancestors! With what greatness of mind the barbarian Anacharsis boasts his method of life: "For me" he said "hunger is my relish, my couch is the earth, my clothing a Scythian wrap." The abstemious Demosthenes drove the drunken Aeschines from the state. Socrates sometimes showed hatred against those who were given to gluttony "and to whom the only cause for living was the palate." "Many" he says "live to eat and drink, I eat and drink to live." Oh truly wise man and worthy of the commendation of Apollo! This too of the Greek poet is memorable: "Do thou guide the reins of thy stomach." What sort of a man was that Epicurus whom all attack as a voluptuary, who put the highest good in pleasure? Surely whatever it was that he rated so high, he thought it consisted in the use of simple bread and water and he praised a slender and easily prepared diet; and writing to a friend, he says: "Send me also a little bit of Cithrisian cheese that when I want to eat more richly, I may." Anaxagoras used to say: "Who eats pleasantly, needs the least sauce." Porphyry advises that we should purge the soul with hunger. In Philostratus, Porus the king of the Indians is suspected from his strength of body and power of limbs of living on water and bread. Masinissa lived to his ninetieth year without delicacies. Mithridates king of Pontus, who waged war with the Roman people for forty years, used to eat standing up so far was he from our custom of reclining on feather cushions. Titus Livy, writing of Hannibal, says "His limit of food and drink was fixed by natural desire not by pleasure; neither day nor night were his periods of walking and sleeping marked off; what was left over from business was devoted to sleep; and this was not induced by soft bedding nor by silence." Among the praises of Augustus Caesar the chiefest is that he was sparing of food and drink. Should we not prefer to hold before ourselves these examples of life so eminent and so salutary toward the health of our minds and bodies rather than adapt our lives to the character of gluttons living contrary to nature and degenerate men to the end that we be sick in both mind and body? But come, will the Turks and the other peoples outside our religion ever wish to become Christians when they see us living in this fashion? But I think the result will be that our race, taught by its own misfortunes, will come back to its senses. Now I return to my plan, and since I was speaking about the slightness of the diet, I will say whether I think as some do that one who follows this diet will be restored even without drinking guaiacum.

(To be Concluded)

THE MELANOTIC PIGMENT IN THE SKIN, HAIR AND EYE OF THE GRAY RABBIT

ITS EMBRYOLOGIC DEVELOPMENT AND THE QUESTION OF THE MESODERMAL ORIGIN OF EPIDERMAL MELANOBLASTS *

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In the higher vertebrates, especially in man, most of the melanotic pigment is to be found in the ectodermal elements of the skin, where it plays a much more important rôle than the mesodermal pigment. The pigment building cells (melanoblasts) of the epidermis are the ordinary basal cells, sometimes cells lying directly above them, and cells lying at about the basal cell level but showing dendritic processes. Melanoblasts are also found in the hair matrix cells of the bulb, in the epidermal hair sheets, the epidermal parts of the sebaceous glands, the excretory ducts of the sweat and sebaceous glands and in certain mucous membranes.

With the paper of Kolliker in 1860 there began a controversy that lasted for many years as to whether the epidermis built its own pigment or whether it obtained this pigment from the cutis. According to Kolliker, Aebi, Halpern, Riehl and Karg (1860 to 1891), cells from the cutis (connective tissue cells or leukocytes) filled with pigment wandered up to the epidermis and gave up their melanin to it.[1] Ehrmann,[2] in his comprehensive monograph on pigment in 1896, concluded that melanin was formed in special cells, "melanoblasts," which were not identical with leukocytes, connective tissue cells or epidermal elements. These melanoblasts were of mesodermal origin, and they were capable of wandering into the epidermis and functioning there. By means of their dendrites they transferred their pigment to the other epidermal cells.

* Submitted for publication, July 9, 1930.

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* The publication of this paper has been aided by a grant from the Emanuel Libman Fellowship Fund, Inc.

1. A detailed review of the papers on pigment written before 1900 will be found in the works of S. Ehrmann (Das melanotische Pigment und die pigmentbildenden Zellen des Menschen und der Wirbeltiere in ihrer Entwicklung, Bibliotheca medica, Jena, Gustav Fischer, 1886), H. Post (Ueber normale und pathologische Pigmentierung der Oberhautgebilde, Virchows Arch. f. path. Anat., 1894, vol. 135), and E. Meirowsky (Ueber den Ursprung des melanotischen Pigmentes der Haut und des Auges, Leipzig, A. Kleinhardt, 1908).

2. Ehrmann (footnote 1, first reference).

Loeb, Mertsching Garcia, Schwalbe and Post,[3] in a series of papers (all published before 1900) based on experimental and embryologic studies, disagreed with the authors mentioned, and maintained that the epidermis was capable of building its own pigment without any help from mesodermally derived elements.

Investigation of the embryology of formation of pigment in the skin of the higher vertebrates, including man, by Meirowsky,[4] Wieting and Hamdi,[5] Adachi,[6] Bloch,[7] Miescher,[8] Steiner-Wourlisch,[9] Dawson [10] and others during the last thirty years has shown that this formation was autochthonous in the epidermis. They all agreed that from the earliest embryonal life the ectodermal melanoblasts were seen only at the beginning of pigment formation in the area where pigment was found in postuterine life.[7]

The mesodermal melanoblasts of the skin in man are but rudimentarily developed, as in the blue nevus and mongolian spot; but in certain animals, such as the monkeys, guinea-pigs, the gray house mouse and the negro fowl, they form an important system of cells. These cells, however, never communicate with the ectodermal melanoblasts, and they have an origin and period of development different from those of the ectodermal cells. They are perhaps akin to those cells that play such an important rôle in the cold-blooded animals. The independence of the development of these two types was especially brought out by Bloch [7] and Steiner-Wourlisch.[9]

It seems probable from the investigations of Schmidt [11] on reptiles, and especially from those of Kornfeld [12] (Anuren) that in cold-blooded animals pigment cells of mesodermal origin can wander into the epidermis and function there.

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3. Post (footnote 1, second reference).

4. Meirowsky (footnote 1, third reference).

5. Wieting and Hamdi: Ueber die physiologische und pathologische Melaninpigmentierung und den epithelialen Ursprung der Melanoblasten, Beitr. z. path. Anat. u. z. allg. Path. **42**:84, 1907.

6. Adachi, B., cited by Schwalbe: Das Hautpigment beim Menschen und bei den Affen, Ztschr. f. Morphol. u. Anthropol. **6**:1, 1903.

7. The complete literature on pigment will be found in Bloch, B.: Das Pigment, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927, vol. 1.

8. Miescher, G.: Die Pigmentgenese im Auge nebst Bemerkungen über die Natur des Pigmentkorns, Arch. f. mikr. Anat. **97**:326, 1922.

9. Steiner-Wourlisch, A.: Das melanotische Pigment der Haut bei der grauen Hausmaus, Ztschr. f. Zellforsch. u. mikr. Anat. **97**:326, 1922.

10. Dawson, J.: The Melanomata, Edinburgh M. J. **32**:501, 1925.

11. Schmidt, W., cited by Bloch (footnote 7).

12. Kornfeld, cited by Bloch (footnote 7).

It is the consensus of opinion among modern investigators of the pigment problem that the formation of pigment in the melanoblasts of ectodermal and mesodermal origin is brought about in the cells by the activity of an oxydative ferment acting on a colorless propigment. Since the experiments of Fürth,[13] it has been recognized that these propigments are most probably organic cyclic complexes, which are found in the albumin molecule. The old theory of the blood pigment as melanogens has been discarded.

Tyrosine was the first of those substances to be proposed as the melanogen (Fürth, Przibram, Onslow and others). Although free tyrosine has been demonstrated in the circulation of the higher vertebrates, tyrosinase which is found in the hemolymph of insects (Furth) and in a number of cold-blooded animals (Przibram) as well as in plants, has not been proved to be present.

In recent years a number of Italian authors (Angeli, Saccardi, Rondini, Gallerani, Quattrini) have proposed pyrrole derivatives such as pyrrole, methylindole and skatole as propigments.[14] They have based their theory on the great similarity between the spectrophotometric curve obtained from pyrrole derivatives and that resulting from natural melanin, on the fact that after injections of such substances reactions such as the "Thormählen" appeared in the urine, like that in the spontaneous melanuria and on the fact that melanin gives the "Fichtenspahn" (spruce chip) reaction.[15]

As Bloch and Schaaf [16] have pointed out, no conclusions can be drawn from such comparisons, because, on the one hand, it is not to be wondered at that injections of pyrrole derivatives should give a positive Thormählen reaction in the urine, and, on the other hand, melanin produced from the various melanogens—such as tyrosine, tryptophan and dopa—is so similar to natural melanin that no conclusions can be drawn from the comparison between the two substances so far as the nature of the mother substance is concerned. Also, Raper's [17] work has shown that the melanin produced in the tyrosine-tyrosinase reaction contains a pyrrole (indole) ring, which is built from the side chain (α—aminopro-

13. Fürth, O.: Ueber tierische Tyrosinasen und ihre Beziehungen zur Pigmentbildung, Beitr. z. Physiol. **1**:229, 1902.

14. This question was discussed in detail by Bloch (Das Pigment, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927, vol. 1) and by Peck (Zur Pigmentgenese in der Haut und den Haaren von Kaninchen, Arch. f. Dermat. u. Syph. **157**:234, 1929).

15. Both the "Thormählen" and the "Fichtenspahn" reactions are indicators of the presence of heterocyclic rings (pyrrole and indole).

16. Bloch, B., and Schaaf, F.: Pigment Studien, Biochem. Ztschr. **162**:181, 1925.

17. Raper, H.: The Tyrosinase-Tyrosin Reaction, Biochem. J. **21**:89, 1927.

pionic acid) of the melanogen (tyrosine), and for this reason a positive "Fichtenspahn" reaction is obtained which does not have to be explained by a pyrrole derivative as a propigment.

Another group of arguments of the Italian authors depended on the observation that there was a formation of pigment in the animal organism after the injection of pyrrole derivatives. Introzzi,[18] especially following up the work of Mariani and Saccardi, has been able to produce local hyperpigmentation in the epidermis of gray rabbits by subcutaneous injections of pyrrole derivatives. Peck [19] repeated the work of Introzzi and was able to show that although the injection of pyrrole derivatives did cause a local hyperpigmentation in the epidermis of gray rabbits, they did so only so far as they acted as nonspecific irritants. Under the same experimental conditions (presence of light, etc.) other substances such as acetic acid, which did not come into question as propigments, and even mechanical lesions, increased the local pigment production of the epidermis even more than the injected pyrrole derivatives. The injected pyrrole derivatives among themselves (skatole, α-methylindol) varied in their pigment-producing influence in proportion to the inflammatory reaction that they produced.

The question of the origin of melanin received new impetus from the discovery of the dopa reaction by Bloch. This reaction is characterized by the ability of the melanoblasts to change 3, 4-dioxyphenylalanin (dopa for short) into melanin. It was of great importance, because the reaction took place in skin sections instead of in extracts, and thus Bloch [7] was able to study microscopically the process of the formation of pigment in the cell.

The dopa reaction has been shown by Bloch [7] and his pupils to be absolutely specific, and has the character of a ferment reaction which is only positive with dopa. The slightest change in the structure of the dopa molecule gives a negative reaction. There is a strict parallelism between it and the normal pigment formation—for instance albinotic skin and vitiligo give negative reactions, while an increased dopa reaction is a necessary accompaniment of all hyperpigmentations and is the first visible step in such a process.[20]

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18. Introzzi, P.: L'origine pyrrolina ed indolica del pigmento cutaneo e le cellule a funzione cromatopoietica, Gior. ital. di dermat. e sif. **67**:1414, 1926.

19. Peck (footnote 14, second reference).

20. This fact was clearly indicated in some of my recent studies on pigment formation in the human epidermis after exposure to thorium-X. The dopa reaction became strongly positive from five to six days before any visible pigment began to be formed (Peck, S. M.: Pigment [Melanin] Studies of the Human Skin After Application of Thorium-X: With Special Reference to the Origin and Function of Dendritic Cells, Arch. Dermat. & Syph. **21**:916 [June] 1930).

On the basis of his experiments, Bloch [7] came to the conclusion that the formation of melanin in warm-blooded animals is a characteristic function of the melanoblasts, which depends on their content of specific oxidizing ferment, and in this process a brenzcatechin derivative—dopa or closely allied body—plays a very important rôle as the propigment. Whether it is the only melanogen or whether it is developed from tyrosine, at present cannot be definitely answered, especially since Raper [17] has shown that in the tyrosine-tyrosinase reaction dopa is one of the intermediary products.

In 1921 there appeared a paper by the Spanish histologist, del Rio-Hortega,[21] which supported the old theories of the nineteenth century about the mesodermal origin of the epidermal melanoblasts. His conclusions were drawn from the study of the embryologic pigment formation in the rabbit. He maintained that the "chromoblasts"—melanoblasts—of the skin and its appendages first made their appearance in the cutis toward the end of embryonic life as pigmented cells of dendritic and nondendritic form. The mesodermally derived melanoblasts then penetrated the interstices between the epidermal cells and even wandered up to the stratum malpighi. At the same time the "chromoblasts" penetrated into the hair follicles. This took place in the rabbit in the last few weeks of embryonic life and continued after it was born. Del Rio-Hortega concluded from his studies that the melanoblasts of the higher vertebrates were of mesodermal origin, and that generally the pigment was transferred to the ordinary epidermal cells by the melanoblasts; but that under certain conditions, which were not well known, the epidermal cells themselves could produce pigment.

As a support for his contentions, del Rio-Hortega [21] illustrated his paper with a number of drawings showing the presence of pigmented dendritic and nondendritic cells in the cutis, just below the epidermis and around the hairs. He interpreted such sections as stages in the wandering of the melanoblasts into the epidermis and hair follicles.

It is evident that del Rio-Hortega was influenced by the work of the older authors, as well as by the process of pigmentation in cold-blooded animals. The literature cited by him was that published between 1875 and 1900; not one paper on the work that had been done on pigment in the twenty years prior to the publication of his paper was mentioned. In the recent French literature (Verne and Dejust) the illustrations of del Rio-Hortega were published as proofs of the possibility of the mesodermal origin of the epidermal melanoblasts.

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21. del Rio-Hortega, P.: Algunos Observaciones sobre las Cromoblastos de la Piel Humana, Real Sociedad Española de Historia Natural, Tomo del 50 Aniversoria de su fundacion, March 15, 1921, p. 1.

If the interesting observations of del Rio-Hortega could be substantiated, it would show an atavistic embryologic pigment formation in rabbits or in a particular race of rabbits, which is akin to that described for cold-blooded animals. Such an observation would be contrary to the conclusions arrived at concerning the embryologic pigment formation in the higher vertebrates, including man, according to the work of Meirowsky,[4] Adachi,[6] Wieting and Hamdi,[5] Post,[3] Bloch,[7] Miescher,[8] and Steiner-Wourlisch,[9] some of which—as in the case of Miescher,[8] Meirowsky [4] and Post [3]—was carried on in the rabbit.

Even if his work could be substantiated for a particular race of rabbits, del Rio-Hortega [21] would not be warranted in drawing sweeping conclusions about the origin of the melanoblasts in all of the higher vertebrates.

The following investigations on the embryology of pigment formation in gray rabbits disagree with the observations of del Rio-Hortega [21] in that pigment was first seen in the ectoderm, while the mesoderm contained none. In later stages of development, sections were seen that were identical with the drawings and description of those of del Rio-Hortega [21] and apparently represented melanoblasts in the cutis. It will be shown that the melanoblasts that seemed to lie in the cutis were really epidermal elements, and that the deductions of del Rio-Hortega [21] from such sections were misinterpretations.

MATERIAL STUDIED

The pigment studies were carried out on a race of gray rabbits that I had had occasion to study in previous experiments.[19] Embryos were studied measuring 15, 62 and 85 mm. (almost full term) measured from head to anus over the dorsum—as well as full term rabbits of 12 hours, 1, 10, 12 and 17 days and 2 and 6 months of age. The material was obtained from animals bred in the institute, so that we were certain that we had a male and female of the same race. In the embryologic and in the young age groups (from 12 to 17 days of age) two or three animals from each group were studied; the animals in the 12 and 24 hour and 12 day groups were from the same litter.

Sections from the ear, dorsum and tail were studied. In the embryologic and early age groups, flat sections of the whole ear were made, as well as cross-sections through its long and short diameters; the flat sections were especially valuable in studying the beginning of pigment development, as they not only gave a general view of the distribution of pigment, but included pigmented areas that would have been missed in the cross-sections. In the young animals complete cross-sections of the tail could be included on the same slide.

TECHNIC

In the study of the pigment a definite routine was observed: unstained frozen sections were subjected to the dopa reaction and treated with silver nitrate; unstained paraffin sections were treated with silver nitrate and stained with hematoxylin and methyl green-pyronin (Unna) as well as the ordinary stains for histologic studies.

The dopa reaction (Bloch) is an oxydase reaction which shows the presence of the pigment building ferment and not the pigment. It is an index of the pigment building activity of the cell. This reaction must be carried out on frozen sections, as the ordinary embedding methods destroy the ferment. In order to obtain better frozen sections, the material may be hardened in 5 per cent formaldehyde for from two to five hours before cutting; alcohol quickly destroys the oxydase. The tissue to be used for the dopa reactions must not be previously treated with iodine as in the ordinary preparation of the skin for an excision; the slightest trace of this substance will give a negative dopa reaction. The reaction is very sensitive to the hydrogen ion concentration, the optimum being p_H 7.35. A somewhat increased alkalinity of the solution interferes with the reaction because of the unspecific darkening of the tissue, so that the contrast between the cells showing a positive dopa reaction and their surroundings are not clearcut. The lightest trace of an acid reaction, however, renders it negative. The water for the test must be free from impurities, and in our clinic we use triple distilled water.[22]

The *3*, 4-dioxyphenylalanin (dopa for short) must be a pure optically active or racemose product. Sections 20 to 30 are placed in a 1 per cent solution of dopa in triple distilled water that has been buffered to p_H 7.35 with primary and secondary phosphates (buffers prepared according to the method of Soerensen). The sections can be left at room temperature for from eighteen to twenty-four hours or at 37 C. for from four to eight hours; in the latter method control under the microscope must be carried out to obtain the optimum reaction point for the best possible contrast picture. The sections can then be cleared and mounted in the usual way.

Polymorphonuclear leukocytes give a nonspecific reaction that must not be confused with that in the melanoblasts.[23]

The silver reaction is a test for the presence of melanin—not oxydase—whether the pigment is contained in melanoblasts or in chromatophores. The reaction makes the pigment present much darker, and the very pale, fine granules or perhaps propigments ordinarily not seen are made visible.

In Bloch's laboratory a simple technic is used: frozen or paraffin sections are placed in a 2 per cent silver nitrate solution for two hours, washed in distilled water, and then left in saturated cold sodium thiosulphate solution for ten minutes and washed again (modification of the reaction of Bizozzero).

Pyronin-methyl green (Unna) is valuable as a counter-stain for pigment studies, because it does not obscure even the very fine granules. Frozen sections are valuable for the study of the dendritic cells, because in the thicker sections more of the cell with its processes is seen, and, owing to the lack of fixatives, the cell as well as the pigment is seen in its natural form without any distortion due to shrinkage.

NOMENCLATURE

The nomenclature used in this paper is that followed by the Bloch school: melanoblasts, consisting of pigment building cells of dendritic and nondendritic form and chromatophores; connective tissue cells, con-

22. The description of the technic of the dopa reaction as well as the preparation of the triple distilled water will be found in Jadassohn: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1930, vol. 1, part 1.

23. For a discussion of the dopa reaction in the leukocytes see Bloch, B., and Peck, S. M.: Der Nachweis der Oxydase in den Zellen des myeloischen Systems durch 3, 4-Dioxyphenylalanin (Dopa), Folia haemat. **41**:166, 1930.

sisting of phagocytes, not builders of pigment, which never give a positive dopa reaction.

In the following investigations the chief problem was the development of pigment in the skin and hair of the gray rabbit. In the 15 and 62 mm. embryos the dopa reaction in sections from the eye was studied without any detailed investigation of the whole pigment development.

EYE

In the 15 and 62 mm. embryos the only pigment seen was in the eye, where it appeared as two black rings on each side of the head. Frozen sections were cut through the entire head in a plane parallel to its side. It was difficult to get whole sections. In the frozen, unstained sections of the 15 mm. embryo the pigment appeared as a fine gray ring made up of rodlike or sometimes more rounded granules about the size of those in eosinophilic leukocytes (fig. 1). There was a strong dopa reaction, so that the pigmented layer appeared as a broad black ring, which was very striking when compared to the native sections (fig. 2). The dopa reaction in the eye sections from the 62 mm. embryo was still positive.

According to Miescher,[8] who studied the pigment formation in the rabbit's eye very carefully, the dopa reaction becomes positive with the beginning of pigmentation from the twelfth to the thirteenth day of intra-uterine life; it decreases from the twentieth day onward, and on the seventeenth day of postuterine life it is negative. The pigment cells of the eye develop from two germinal layers: the ectodermal, the pigment cells of the retina, and the mesodermal, the pigment cells of the choroid and corpus ciliaris. The formation of pigment in both germinal layers takes place at different periods; it is autochthonous and develops independently in each layer. In contradistinction to the epidermal pigment formation, pigment is formed in the eye only during the embryonal period and for a short time during postuterine life.

SKIN

Pigment was first seen in the epidermis in the 85 mm. embryo. The epidermis showed relatively few pigmented cells. The flat sections of the ear were especially valuable in the early stages of pigment formation, because only at the base of the ear was pigment formed to any considerable amount. The pigment granules were rod-shaped, about the size of eosinophilic leukocyte granules and usually of uniform size. What appeared to be larger clumps were composed of small groups of rods of uniform size. The pigment was first seen in the basal cells. In the cells that contained very little pigment it was usual to find the granules grouped around the nucleus, but they were also seen scattered throughout the cell.

Pigment was seen in two types of cells: ordinary basal cells and cells having dendritic processes situated at the basal cell level or a little above it. As soon as the cell contained any considerable amount of pigment, it showed dendrites. In the 85 mm. embryo a moderate number of the basal cells showed a positive dopa reaction, but there

Fig. 1.—Cross-section of the eye of a 15 mm. rabbit embryo, frozen section, unstained. The pigment appears as a fine gray ring; oc. × 10, obj. A 8, 0.20 (Zeiss).

were more dopa-positive cells than cells containing pigment. The dopa-positive cells were found in that part of the ear that showed the presence of pigmented cells, and indicated the active pigment building melanoblasts.

The dopa reaction was of two types: diffuse and granular; the diffuse reaction varied from a light gray to a deep black. Most of the cells showing a positive dopa reaction had well formed dendrites, and in the frozen sections seemed to be situated at a little higher level than

Fig. 2.—Cross-section of the eye of the same animal as figure 1, dopa reaction; the pigmented layer appears as a broad black ring; oc. × 10; obj. A 8, 0.20 (Zeiss).

the basal cells (fig. 3). In contradistinction to the observations of del Rio-Hortega [21] and Ehrmann,[2] melanin was first seen to be built in the ectodermal elements of the skin and hair; the cells of the cutis were never seen to build pigment.

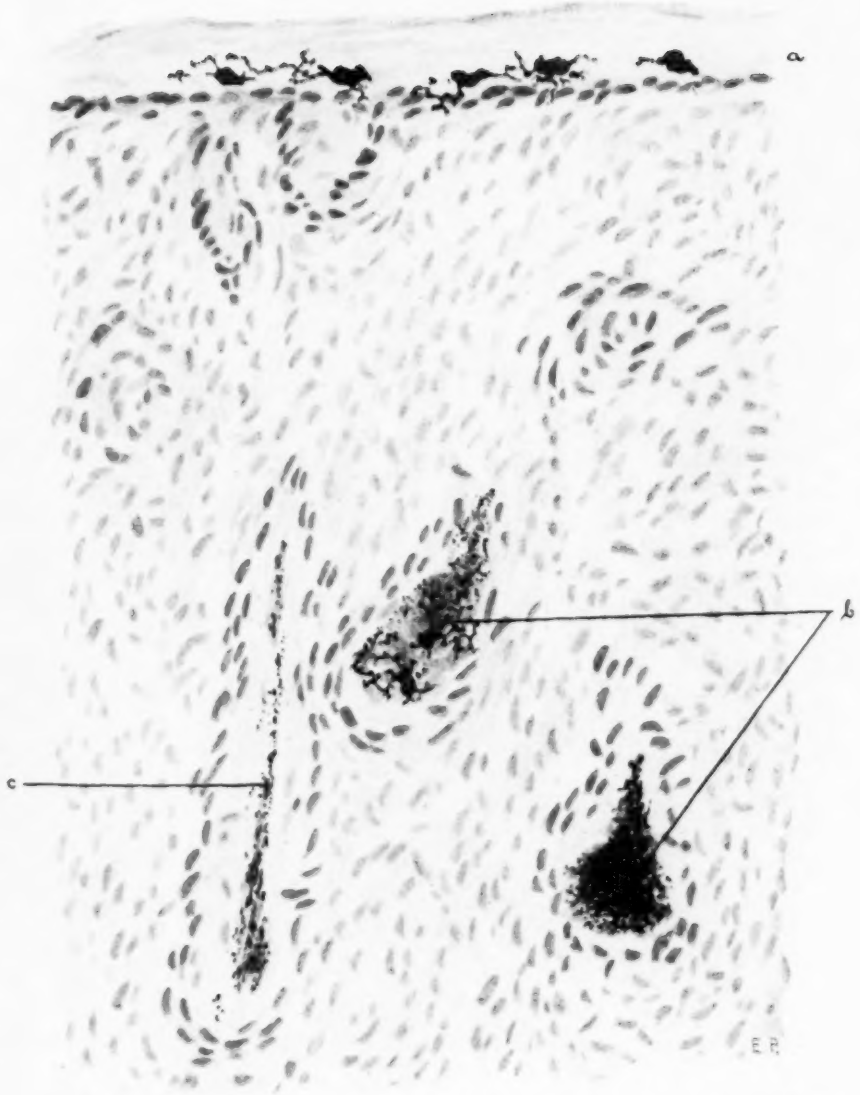

Fig. 3.—Dopa reaction in a section from the ear of an 85 mm. embryo (just before term). Dopa-positive cells are seen in the epidermis (*a*) and in the hair matrix cells of the bulb (*b*). Most of the dopa-positive cells show well formed dendrites. The dopa-positive cells in the epidermis are situated a little above the basal cell level. The pigment in the hair shaft (*c*) gives a negative dopa reaction. There are no dopa-positive cells in the cutis; oc. × 7, obj. 40, 0.65 (Zeiss).

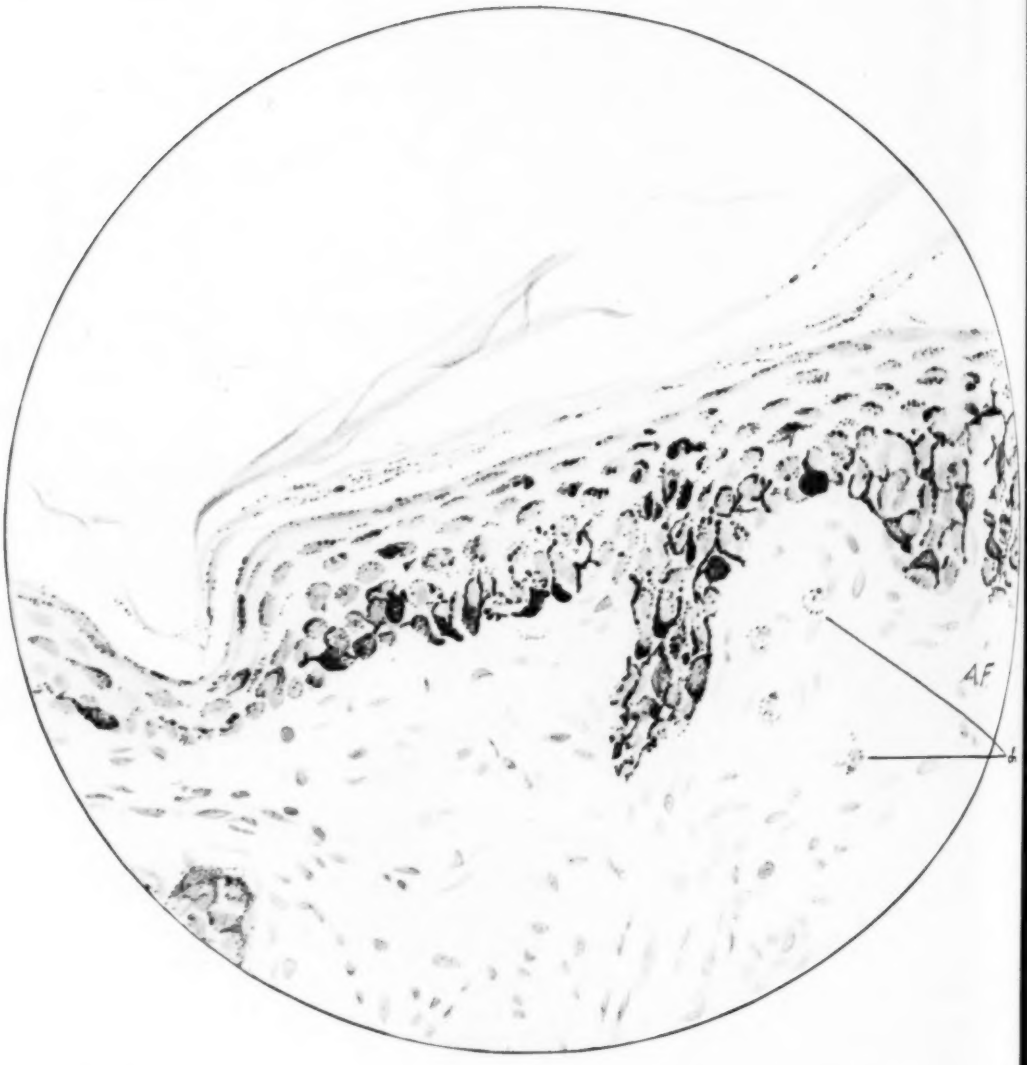

Fig. 4.—Section from the right flank of an adult rabbit. The area has been shaved and given daily exposures to ultraviolet light at a distance of 70 cm. for thirty minutes for a period of ten days. Excision on the twelfth day. Paraffin section treated with silver nitrate and counterstained with methyl green-pyronin. The epidermis contains a great deal of pigment in the basal cells and overlying layers up to the stratum corneum, and it is even being cast off with the scales. Most of the pigmented basal cells show dendrites (*mel.*). A few chromatophores are seen in the cutis (*ch*). A control excision from the right flank a short distance above the rayed area taken before exposure to ultraviolet rays showed no pigment in the epidermis. Reduced from oc. × 10, obj. D 40, 0.66 0.17 (Zeiss).

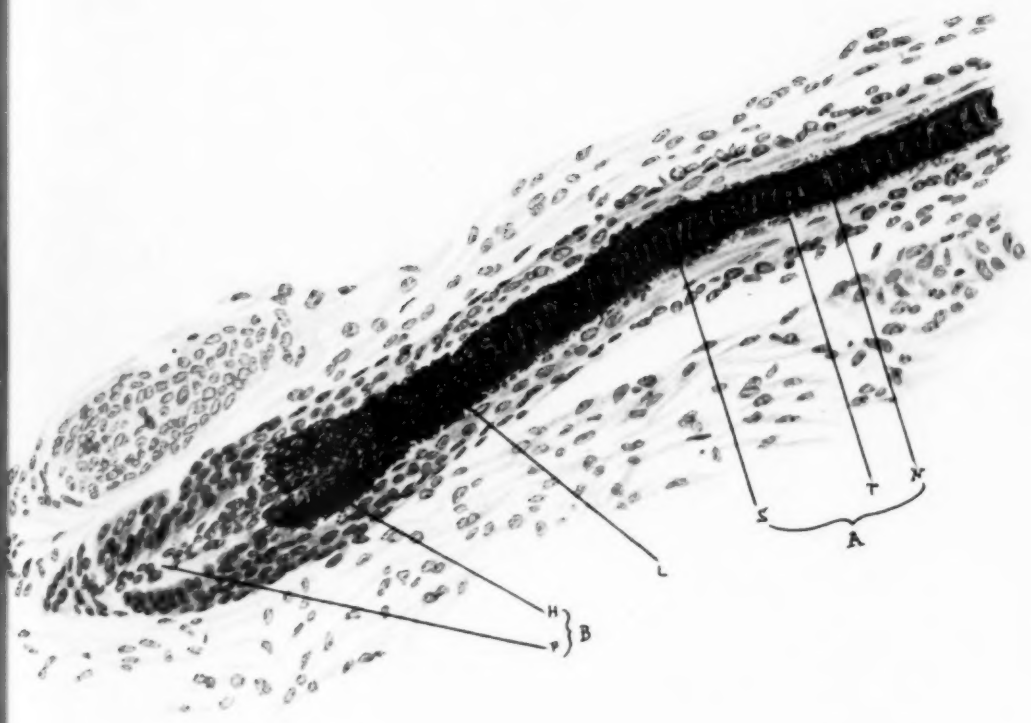

Fig. 9.—Cross-section through a growing hair of an adult rabbit; section taken from dorsum, hematoxylin stain. *B*, indicates hair bulb; *P*, papilla; *H*, hair matrix; *L*, approaching zone of keratinization, pigment diffuse and arranged in "cap" over nucleus; *A*, hair shaft; *S*, flattened pigment cap; *N*, space formerly occupied by nucleus; *T*, pigment of the cortex of the shaft. Reduced from oc. × 10, obj. D 40, 0.65 (Zeiss).

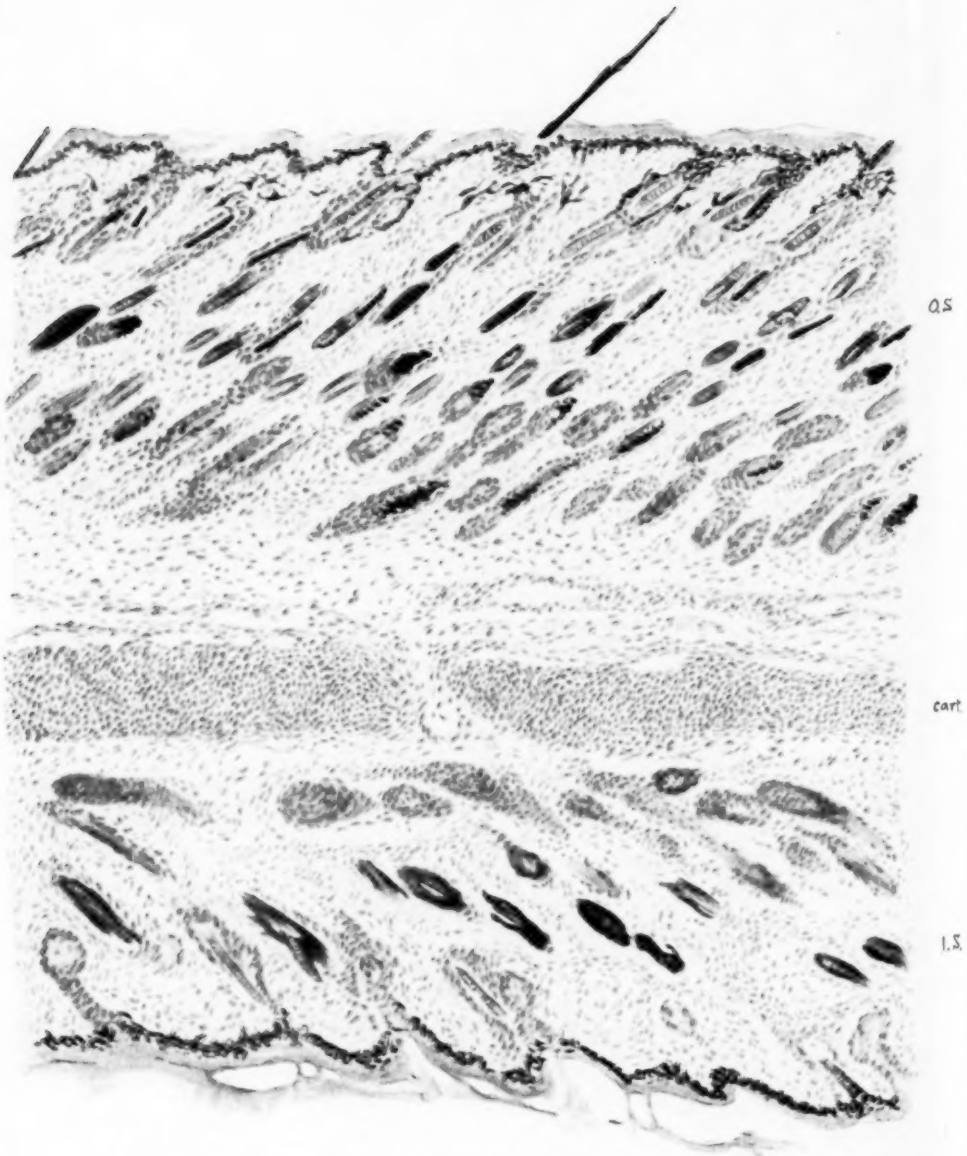

Fig. 12.—Cross-section through the ear of a 10 day old rabbit at its shortest diameter. Paraffin section treated with silver nitrate and counterstained with methyl green-pyronin. The outer surface (*O. S.*) contains many pigmented hairs; the epidermis is well pigmented, and there are seen a number of dendritic cells which apparently lie free in the cutis. *Cart.* indicates cartilage. The inner surface (*I. S.*) does not show any dendritic cells in the cutis, even though the epidermis is well pigmented owing to the absence of pigmented hairs. The dendritic cells seen below the outer epidermis are really peripherally situated pigmented cells which belong to hair follicles.

From twenty-four hours to seventeen days of postuterine life there was a great increase in epidermal pigment production, which in the sections studied reached its acme at from the twelfth to the seventeenth day (figs. 5 and 10). The twelve hour sections showed little increase over that of the 85 mm. embryo. Coincident with the increase in pigmentation there was an increase in the number of cells that gave a positive dopa reaction. In the early sections (85 mm. embryo) there were more dopa-positive cells than cells that contained pigment, even with the silver reaction. It has been pointed out by Bloch,[7] Miescher [8] and Peck,[24] as well as others, that the positive dopa reaction was the first visible step in the process of pigmentation. With the increase in the production of pigment there was a great increase in the number of dendritic cells, until in the ten and twelve day sections the majority of pigment containing cells in the basal layer showed well formed dendrites with both silver and dopa.

With the increase of the pigment content many of the basal cells showed "capping," a caplike accumulation of pigment over the upper pole of the nucleus. Pigment was also seen in the overlying layers as far up as the stratum corneum and in the scales. The pigment was carried upward with the upward growth of the cells, concentrated into the stratum corneum and finally cast off with the scales.

Chromatophores were not seen in any of the sections. As Miescher [25] first maintained, the main modus for getting rid of pigment in animals was by casting it off with the scales. The chromatophores played but a secondary rôle; their number was proportional to the amount of injury to the pigment containing basal and directly overlying cells. The injured cells lost some of their pigment to the cutis, where it was phagocytosed by connective tissue cells (chromatophores). This has been substantiated by Bloch [7] and Peck [24] for the human being and by Peck [19] for the rabbit. In the ordinary production of hyperpigmentation by means of the ultraviolet light, the roentgen ray, thorium X, etc., there is always an attendant pathologic change in the epidermis, so that it is usual to find chromatophores in the cutis, varying in number in proportion to the amount of injury to the epidermal cells. In the process here described there is an intense physiologic production of pigment without the attendant trauma, and this explains the absence of chromatophores.

From the seventeenth day onward the production of pigment decreased, and in the 2 and 6 months old rabbits it was of the adult

24. Peck, S. M.: Pigment (Melanin) Studies of the Human Skin After Application of Thorium-X, Arch. Dermat. & Syph. **21**:916 (June) 1930.

25. Miescher, G.: Die Chromatophoren in der Haut des Menschen, Arch. f. Dermat. u. Syph. **139**:313, 1922.

type. In the 17 day old animals the dopa reaction in the ear was still very strong; but in the sections tested with dopa as well as in those tested with silver there was a marked decrease in dendritic cells. In the 2 and 6 months old rabbits there was a definite decrease in the number of cells in the epidermis that showed a positive dopa reaction. Most of these cells were of the ordinary basal cell shape, or they showed short stubby processes.

The dendritic cell and its processes are made visible by their content of pigment or, better yet, by the dopa reaction, which demonstrates the cytoplasm containing the pigment building oxydase. The dopa reaction gives a much more comprehensive picture, especially in the diffuse reaction.

The dendritic cells are spindle, elliptical, irregularly round or quite bizarre in form. Processes are given off at the poles, or there may be from three to five springing anywhere from the surface. They may be long or short, thick or thin, and at their terminations they sometimes show a button or knoblike swelling (these may be cross-sections of dendrites). At times the dendritic processes apparently seem to communicate with each other, and they show a swelling at their point of contact. The dendritic cells vary in size from 40 to 70 mm.; they have a round or oval nucleus, situated in the center or eccentric. The dendrites extend between the cells of the epidermis, sometimes for a length of eight cells or for a short distance upward; or they run below the basal cell at the epidermocutis junction. The dendritic processes were never seen to dip below the epidermis into the cutis. Mitotic figures were not seen in dendritic cells.

It is curious that the dendritic cell and its processes are made visible only by their content of pigment or dopa oxydase. The shape of the dendrititc cell and its dendrites depends on the amount of these substances present and the method used for their demonstration. They do not take the ordinary cytoplasmic stains. In the study of the origin of the dendritic cells in man,[24] it was seen that after application of thorium X in the period before visible pigment was produced, the dopa reaction showed as many as 40 per cent of the basal cells with dendritic processes, while with the ordinary staining reactions, and even with the silver reaction, only a few dendritic cells were seen.

At present the only function of the dendritic cell that is known is its melanoblastic one. It is impossible to decide definitely about their origin. According to the present state of knowledge, there are three possibilities: (*a*) the dendritic cells and ordinary basal cells exist side by side, and the former are made visible only during the process of pigmentation by their content of pigment or dopa oxydase, but the dendritic cell form is always maintained; (*b*) all basal cells have a

dendritic form, but only those dendritic cells are visible that have pigment or dopa oxydase; (*c*) the dendritic cells are only functional phases of nondendritic basal cells. The last possibility seems to be the most probable, but as yet it has not been proved.[26]

The description of the pigment process for the epidermis was based mainly on the study of sections from the ear. The epidermis of the body and tail contains very little pigment and that of the dorsum of tail more than that of the body. This is in accord with what is known of the epidermal pigment content in animals in areas that are covered with long pigmented hair. In the ear the short hairs are less of a protection against the actinic rays than the long pigmented hairs of the dorsum and tail. While the embryologic sections and the very young animals showed an almost equal content of pigment in the epidermis of the ear on the outer and inner surfaces, the pigment content of the inner surface was markedly decreased in the older animals, and in the adults there was quite a difference between the two surfaces.

There is little pigment to be found in the epidermis of the dorsum of the adult rabbits of this race, and in studying embryologic pigment development the same holds true (fig. 14). When the back of such an adult rabbit is shaved, the skin may be white or it may show irregular black or gray areas that increase in number as one nears the spinal column. These areas are not due to the pigment content of the epidermis, but to the pigmented hairs in the underlying cutis. The number and distribution of the underlying pigmented hairs determine the color and location of these areas.

The skin on the back, however, has the latent power to build pigment. A shaved area exposed to sunlight, ultraviolet light, roentgen ray or thorium X builds pigment (fig. 4). Injections of irritating substances increase the pigment-producing power of light. Animals kept in the dark do not develop pigment in spite of the injection of irritants.[24] The skin on the under surface does not develop pigment even after exposure to the chemically active rays such as thorium X or ultraviolet light.

The epidermis from such shaved areas gives a negative dopa reaction; six days after exposure to ultraviolet light, dopa-positive dendritic cells begin to appear in the epidermis, and on about the seventh day pigment begins to be formed. The dopa reaction remains positive for only a short period after the last irradiation. The pigment that is built is for the most part cast off with the scales, and if such a region is examined after several months when the hair has assumed its normal length, most of the epidermal pigment is seen to have disappeared.

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26. A complete discussion of the origin and function of dendritic cells will be found in a recent paper (footnote 24) and in one by Bloch (footnote 7).

In the cutis of the sections from 24 hours up to 17 days a great number of pigmented cells were seen situated a short distance below the epidermis. These were only rarely found in the 2 and 6 months old rabbits. The cells were usually of the dendritic type and gave a positive dopa reaction; therefore they were melanoblasts.

It was from such sections that del Rio-Hortega [21] obtained his proofs for the mesodermal origin of the melanoblasts. I have been able to show by serial reconstructions that these pigmented cells in the cutis are ectodermal elements that are situated at the periphery of hair follicles and only appear to be isolated cells lying in the cutis (fig. 13).

In 85 mm. embryos and in the 12 hour old rabbits pigmented cells in the cutis were not seen, although pigment formation in the epidermis had already begun (fig. 3). This is contrary to the observations of Ehrmann [2] and del Rio-Hortega,[21] who maintained that pigment cells of dendritic and of nondendritic form were first seen in the cutis before any pigment was present in the ectodermal elements.

HAIR

The primary formation of the hair is a downward growth of a number of cylindric cells into the cutis. As the epidermal hair bud grows downward, it is invaginated by the mesodermal elements that form the papilla. From the cylindric cells which clothe the papilla there is formed the inner hair sheets. The surrounding connective tissue gives rise to the outer root sheet of the hair follicle. Finally, the hair is seen lying in its follicle—a funnel-shaped downgrowth of the epidermis into the corium. The follicle is lined by the follicular epithelium that is continuous with the inner root sheets and finally merges with the germinal layer clothing the papilla; this germinal layer gives rise to the hair shaft.

Pigment was first seen in the hair in the matrix cells clothing the papilla, while the rest of the hair and the papilla itself showed no pigment (fig. 7). As a rule the production of melanin did not begin until invagination had taken place, but occasionally a pigmented cell—usually of dendritic form—was seen in young epidermal hair buds before this period of development. The beginning of pigment formation could be very well studied in the 85 mm. embryo. At that time none of the hairs had as yet broken through the epidermis; the formation of pigment in the hair bulbs was more active than in the epidermis. A very good dopa reaction was to be seen in the hair matrix cells of the bulbs, most of the dopa-positive cells showing a dendritic form. In the hairs actively producing pigment, the dopa reaction was positive in the hair matrix cells of the bulb up to the neck; the pigment-containing cells of the shaft gave a negative reaction (fig. 3). The pigment granules were rodlike, brown to black and plumper than those of the epidermis. The hair matrix cells of the bulb that contained any pigment showed dendritic

Fig. 5.—Cross-section through short diameter of the ear of a 12 day old rabbit. Paraffin section treated with silver nitrate and counterstained with methyl green-pyronin. The epidermis is heavily pigmented; many pigmented dendritic cells are apparently lying free a short distance below the epidermis; there are many pigmented hairs; oc. × 10, obj. A 8, 0.20 (Zeiss).

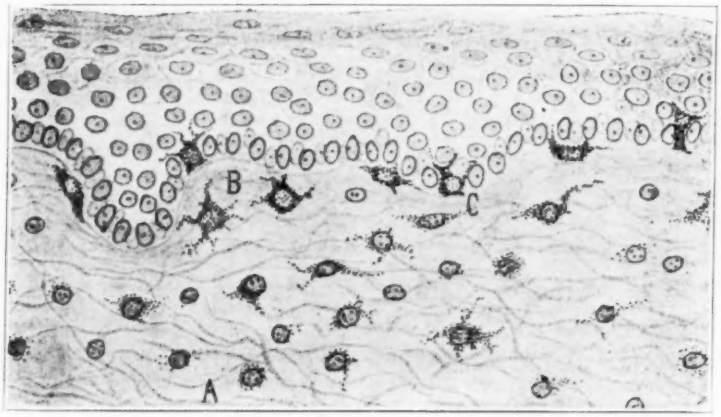


Fig. 6.—This is an illustration taken from del Rio-Hortega's paper. The magnification is much higher here than that of figure 5. The field was apparently taken between two hair follicles as no hairs are seen. From such an illustration one does not get an idea of the relation of the pigmented cells in the cutis to the number of pigmented hairs. I have never seen an invasion of the epidermis by pigmented cells from the cutis, so that cells were seen which were lying partly in the cutis and partly in the epidermis.

form. In those hairs in which the cells were loaded with pigment, it was very difficult to make out individual cell outlines or to trace a dendritic cell and its processes. Even with the dopa test the hair bulb sometimes gave just a solid black smudge, owing to the intense reaction, in which single elements could not be made out. The dendritic cells were best seen in relatively little pigmented hair bulbs.

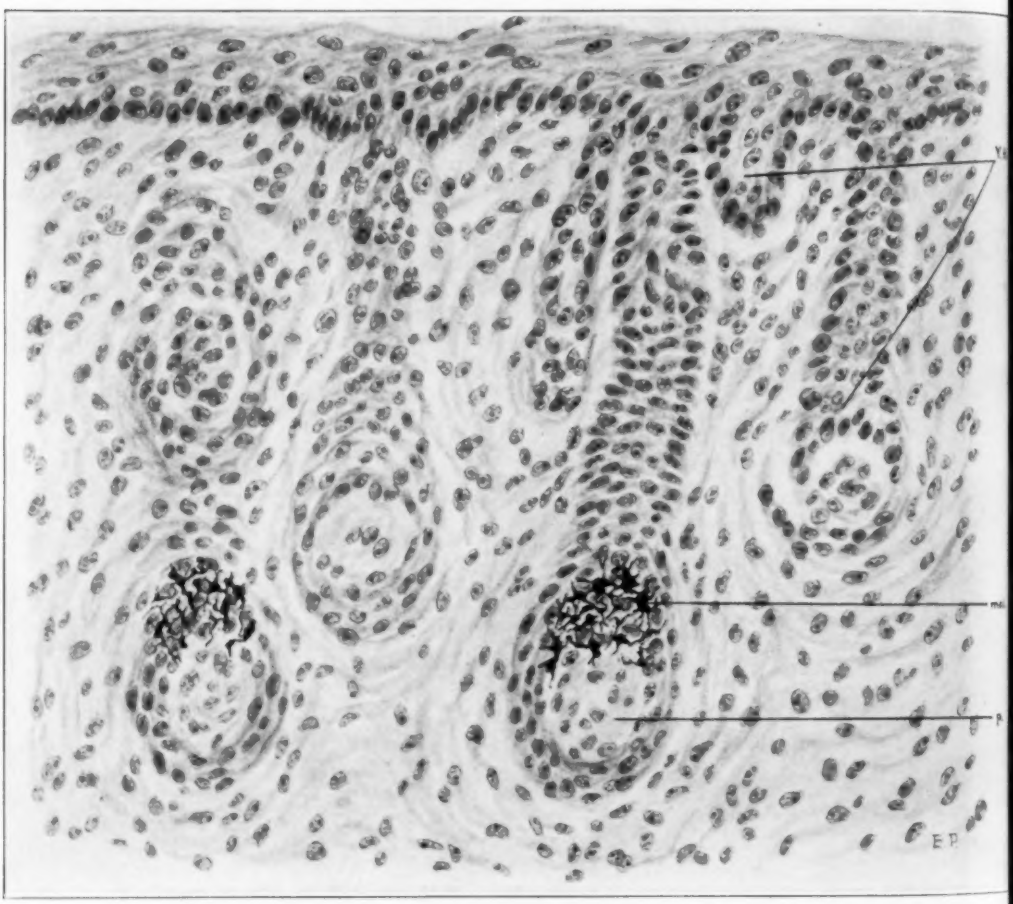


Fig. 7.—Paraffin section from the ear of an 85 mm. embryo, treated with silver nitrate and counterstained with methyl green-pyronin. The hairs here have not yet broken through the epidermis; there are many young hairs, some of which still possess no definite hair bulb (*Y. H.*). There is pigment production in the hair matrix cells situated directly above the papilla (*p.*). Most of the pigmented cells (*mel.*) show dendrites; there is no pigment in the papilla (*p.*) and cutis. Reduced from orthoscope oc. × 17, obj. D 40, 0.65 (Zeiss).

The papillae, as well as the rest of the cutis, were free from pigment cells in all of the sections studied. At no time could there be observed an invasion of mesodermal pigmented cells into the hair matrix cells of

the bulb or into the upper part of the hairs, and wandering down into the hair bulbs—as del Rio-Hortega [21] maintained—as the first step in pigment formation in the hair. Pigment building was autochthonous in the ectodermally derived elements of the hair at a time when no pigment was seen in the cutis.

In the 12 and 24 hour sections the number of pigmented hairs as well as their degree of pigmentation had rapidly increased; the hairs began to break through the epidermis. The greatest number of hairs

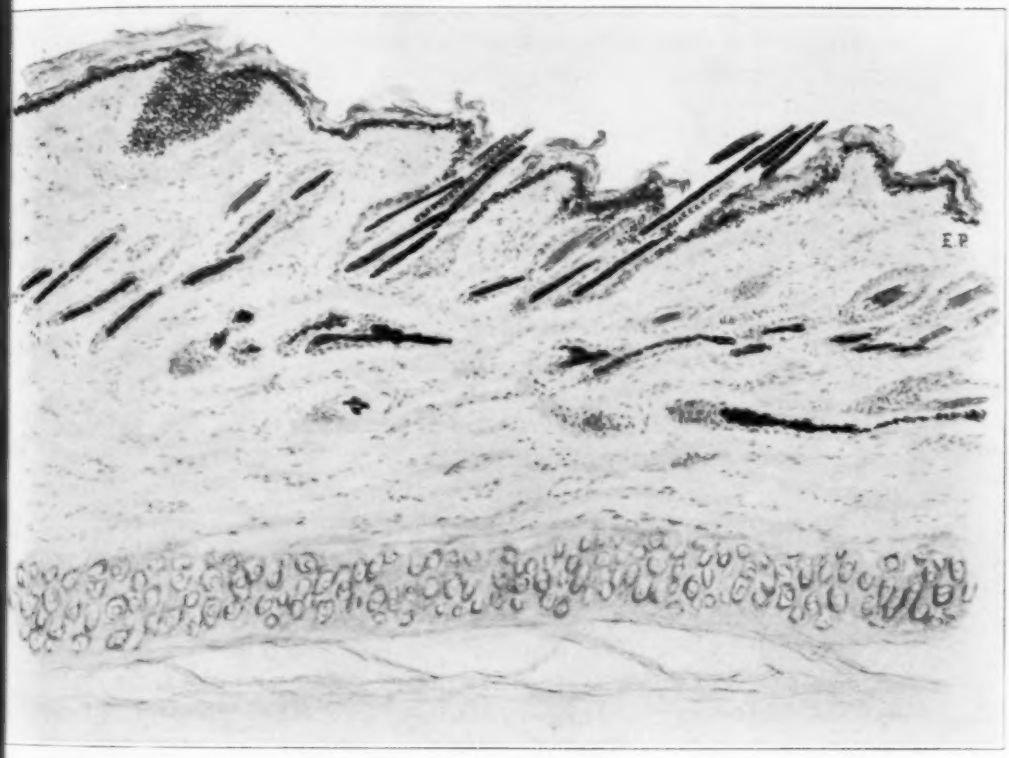


Fig. 8.—Paraffin section from the ear of a 2 months old rabbit, methyl green-pyronin. There are no pigmented cells to be seen in the cutis; the epidermis contains a great deal of pigment. Reduced from oc. × 10, obj. A 8, 0.20 (Zeiss).

per field was found in the ten to seventeen day sections. The 2 and 6 months old rabbits showed hair of the adult type. The number of hairs per field had decreased; they were now seen to be of two types, single large hairs and those in groups of two or three opening into a common follicle. I could not tell from the sections that I had studied when this change in type took place (fig. 8).

In the 24 hour sections a great many melanoblasts, mostly of dendritic form, began to appear in the follicular epidermis and upper epidermal hair sheets. The melanoblasts increased in number in the next few days and reached their acme on from the twelfth to the seventeenth day. After that period they decreased with the decrease of pigment production in the rest of the epidermis. The follicular epidermis was heavily pigmented only in the ear; in the tail it was only moderately pigmented, and in sections of the back, even at the height of development of epidermal pigment in the ear pigmented cells in the follicular epidermis were a rarity.

Microscopic examination of an adult pigmented rabbit hair showed a peculiar striated appearance of the hair shaft, consisting of alternating light and dark bands. This peculiar appearance is explained—as Steiner-Wourlisch [9] has pointed out in the gray house mouse—by the changes that occur in the upward movement of the pigment with the upward growth of the hair matrix cells of the bulb to form the medulla of the hair shaft.

As the pigmented cells of the bulb approach the zone of keratinization in the medulla of the shaft, the pigment forms a cap over the nucleus. In the course of the upward growth of the cell this cap is flattened and becomes bandlike. As the cells are carried upward into the medulla of the shaft, a pigmented strip is found; below it is the nucleus and then another pigmented strip belonging to the underlying cell. This explains the peculiar alternating striped appearance. In the process of hornification the nucleus loses its staining power, so that finally there is what seems to be an empty space between bands of pigment. The pigmented cells of the cortex of the shaft remain diffusely pigmented; the pigment granules run in rows, their long diameter parallel to the diameter of the hair (fig. 9).

The adult rabbit has a gray coat with markings ranging from darker gray to black. The hairs become lighter as they approach the under surface, where they are white. Macroscopic examination of single hairs show that although quite a number are diffusely black or gray for almost their whole length, most of the hairs show a black tip with alternating bands of various widths and degrees of pigmentation from light gray to black. This is due to the varying amounts of pigment produced during the growth of the hair. A full grown adult hair shows no pigment a short distance above the root.

Since the hairs grow at an acute angle to the long axes of the animal, the coat owes its markings to the grouping of the various dark and light bands in the hairs. When a full grown rabbit is shaved, the new growing hair builds pigment, irrespective of whether the animal is kept in the dark or in the light. It is not light, but growth regeneration, which is the pigment stimulus.[19]

In the 24 hour sections, pigmented cells began to be seen in the cutis. These cells rapidly increased in number in the next few days, and on the twelfth day had reached their maximum. From the seventeenth day onward, they rapidly decreased in number until in the 2 and 6 months old sections they were rarely found. These pigmented cells were usually of dendritic form and situated a short distance below the epidermis—in the majority of cases there was a definite space separating them from the basal cells (fig. 5). Such isolated cells in the cutis were especially suitable for the study of dendritic forms. These cells were melanoblasts and gave a positive dopa reaction. In some of the sections they were seen very near the epidermis of the skin, but an actual invasion—with part of the cell body in the cutis and part of it in the epidermis—was not seen. However, cells that apparently showed this were seen in relation to the follicular epidermis.

COMMENT

In studying the time of appearance, the distribution and the number of these pigmented cells in the cutis, which del Rio-Hortega [21] contended to be of mesodermal origin, several facts became evident:

1. The pigmented cells appeared in the cutis after pigmentation had begun in the epidermis and the hair matrix cells of the bulb.

2. The pigmented cells in the cutis began to appear with the beginning of pigmentation in the follicular epidermis and upper epidermal hair sheets; they increased in number with the increase in pigmentation in these structures and began to disappear with their decrease in pigment.

3. Their number was directly proportional to the number of pigmented hairs, that is, pigmented follicular epidermis and upper epidermal hair sheets and the proximity of these hairs to each other.

4. In sections from the dorsum, where we had just as many hairs per field as in the ear, but where the pigment was limited to hair bulb and shaft, these pigmented cells in the cutis were not seen from the beginning of pigmentation to the adult stage.

5. Serial reconstructions showed that the pigmented cells which apparently were lying free in the cutis could be traced to hair follicles and upper epidermal hair sheets which did not appear in the sections under observation.

Pigment was first seen in the 85 mm. embryo and in the 12 hour sections in the epidermis and hair matrix cells of the bulb, while there was no pigment in the cutis (figs. 3 and 7). In the 24 hour sections pigmented cells, mostly of dendritic form, were seen just below the epidermis. Their number increased in subsequent sections until on the twelfth day they appeared to form a band below the epidermis (fig. 5).

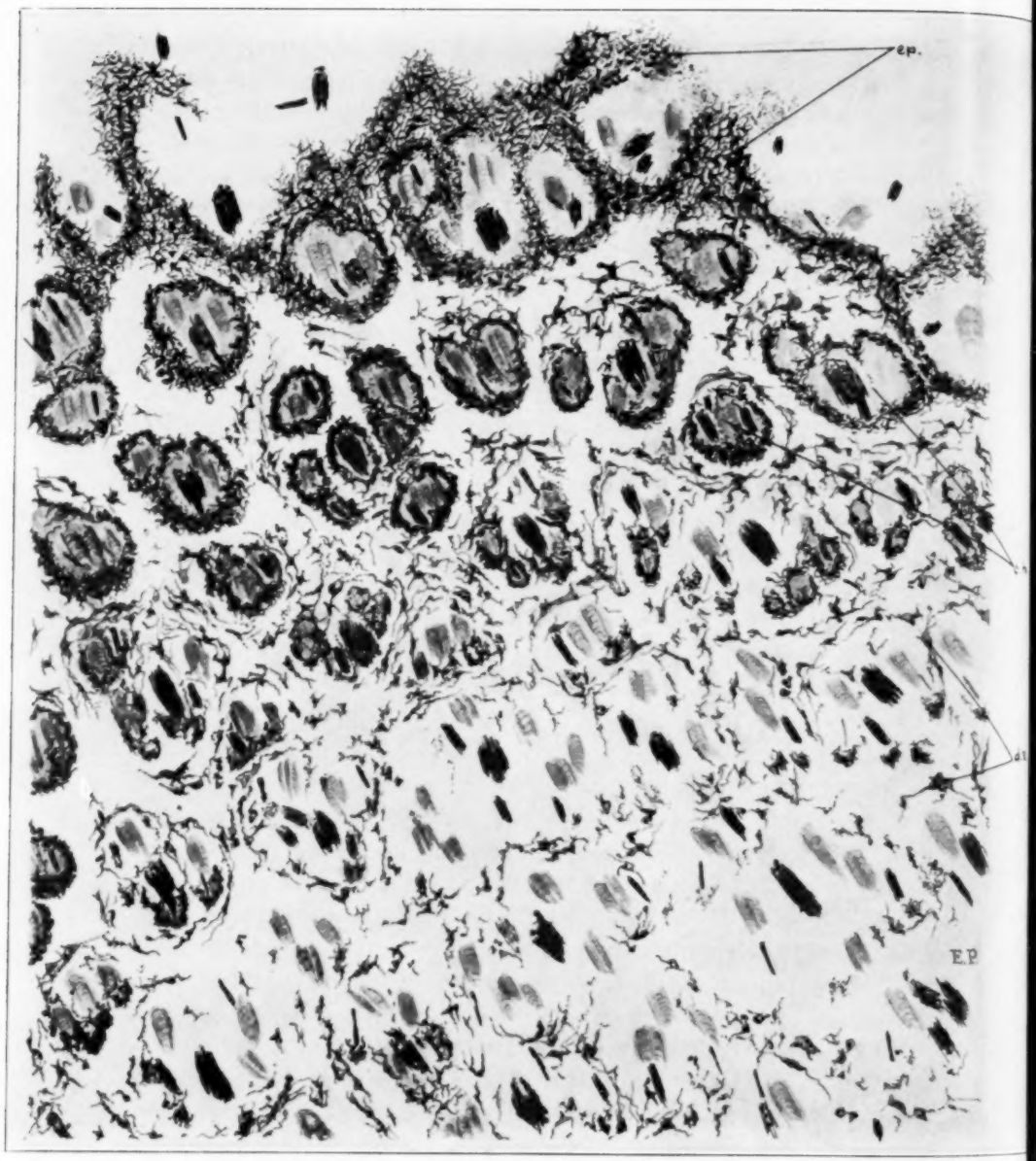


Fig. 10.—Flat section of the ear of a 12 day old rabbit; same animal as in figure 5. Frozen sect treated with silver nitrate unstained. The field shows the epidermis of the tip of the ear. The epiderm (*ep.*) contains a great deal of pigment. The great number of dendritic cells in the epidermis and follicles striking. A great many pigmented hairs are seen in cross-sections (*c.h.*). Between these are seen pigment dendritic cells that seem to lie in the cutis (*d.*). It is obvious that in a field containing so many pigment hairs, peripherally situated melanoblasts could appear to be isolated in the cutis. Other fields on the sa slide that contained but few pigmented hairs did not show any pigmented cells in the cutis.

The number and distribution of these pigmented cells were directly proportional to the number of hairs per field and especially to the amount of pigment in the follicular epidermis and upper epidermal hair sheets. The follicular epidermis began to show a great increase in pigment—usually in the dendritic cells—in the 24 hour sections, and showed their greatest pigment content on the twelfth to the seventeenth day, at the time when there was the greatest amount of dendritic cells in the cutis. In the flat sections of the ear (12 days old) the relationship of the

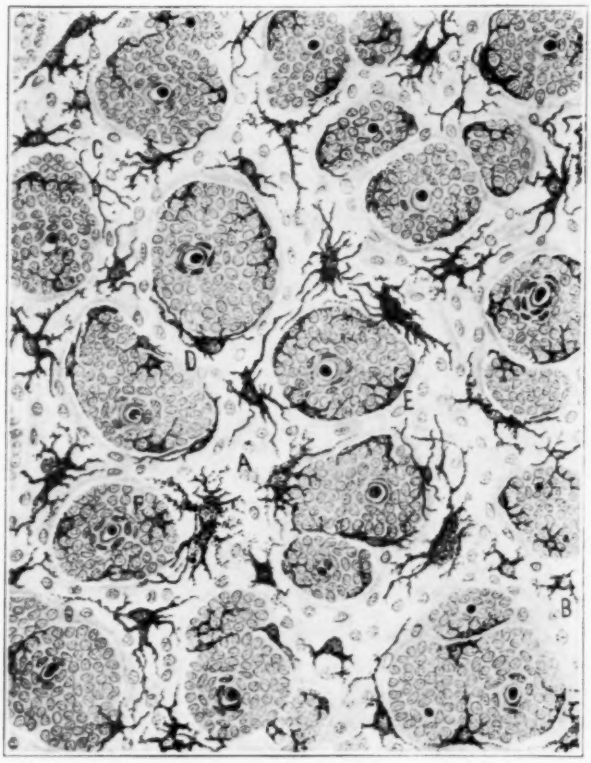


Fig. 11.—Illustration from del Rio-Hortega's paper, which he uses as proof for the mesodermal origin of the melanoblasts. Note the similarity to figure 10. Del Rio-Hortega did not observe an invasion of the hair matrix cells of the bulb from the papillae as did Ehrmann, so that he assumed that the melanoblasts invaded the hair at its upper part and wandered down into the hair bulb.

number of dendritic cells in any one field to the number and close proximity of pigmented hairs, that is, pigmented hair follicles, could be distinctly seen (fig. 10). Sections from the ear from the 24 hour to the 17 day old animal were seen that were similar to the drawings in del Rio-Hortega's [21] paper which were used as a proof for the mesodermal origin of melanoblasts (figs. 5, 6, 10 and 11).

A cross-section of the ear of the 10 day old rabbit taken through its shortest diameter showed clearly that the appearance of pigmented cells in the cutis was dependent on the presence of pigmented hair follicles. The sections were cut through the entire thickness of the ear, so that the epidermis of the outer and inner surfaces appeared in the same field. While the whole outer surface of the ear at this period of development was covered with many pigmented hairs, the inner surface showed only a fairly large number of hairs at the edge. Their number on the inner surface rapidly decreased toward the center, where they were also for the most part free from pigment. The epidermis of both surfaces, however, was fairly well pigmented.

The number of pigmented cells seen in the cutis in this section was directly proportional to the number of pigmented hair follicles per field, so that a field at about the middle of the ear, as in figure 12, showed a great many pigmented cells in the cutis below the epidermis of the outer surface (*O.S.*), while there were none to be seen below the epidermis of the inner surface (*I.S.*) where there were no pigmented hairs, although the epidermis of both surfaces was well pigmented. As the edge of the ear was approached, where both surfaces contained a great many pigmented hair follicles, they were seen in the cutis below the epidermis of both surfaces.

Sections from the ear of the 2 and 6 months old rabbits rarely showed a pigmented cell in the cutis, even on the outer surface. At this time the number of hairs per field had markedly decreased, and the degree of pigmentation too was less (fig. 8). It is understandable that in a section in which there were many pigmented follicles lying in close proximity to each other, peripherally situated pigmented cells could appear to be isolated, because the structures—follicular epidermis and upper hair sheets—to which they belonged had as yet not appeared in the sections under observation.

That such an assumption was the correct one was clearly brought out in serial reconstructions. This could be especially well studied in sections from the ear of 10 day old rabbits, because the number of pigmented cells in the cutis had as yet not reached a confusing number.

Figure 13 *A* and *B* represents photomicrographs of serial cross-sections 8 microns thick from the ear of a 10 day old rabbit from the same block as the section in figure 12. The photomicrograph was so made that by measurement from some known landmark, corresponding points in both sections could be found. In these sections the edge of the ear (beginning of marker) was taken as the known point. Seven photographs at an enlargement of 200 were made. They were then joined together so that we had one large field; *A* and *B* are 5 serial sections apart. After the seven photographs were put together, the

whole was reduced to the present enlargement, approximately one-third. It is clearly seen that dendritic cells in *A* (*a*, *b* and *c*) which seem to lie free in the cutis when followed through to *B* are seen to be peripherally situated melanoblasts belonging to the hair follicles that are not seen in *A*.

The study of the process of pigment formation in the skin of the back further substantiated the conclusion that formation of pigment was autochthonous in the ectodermal elements and that the pigmented cells

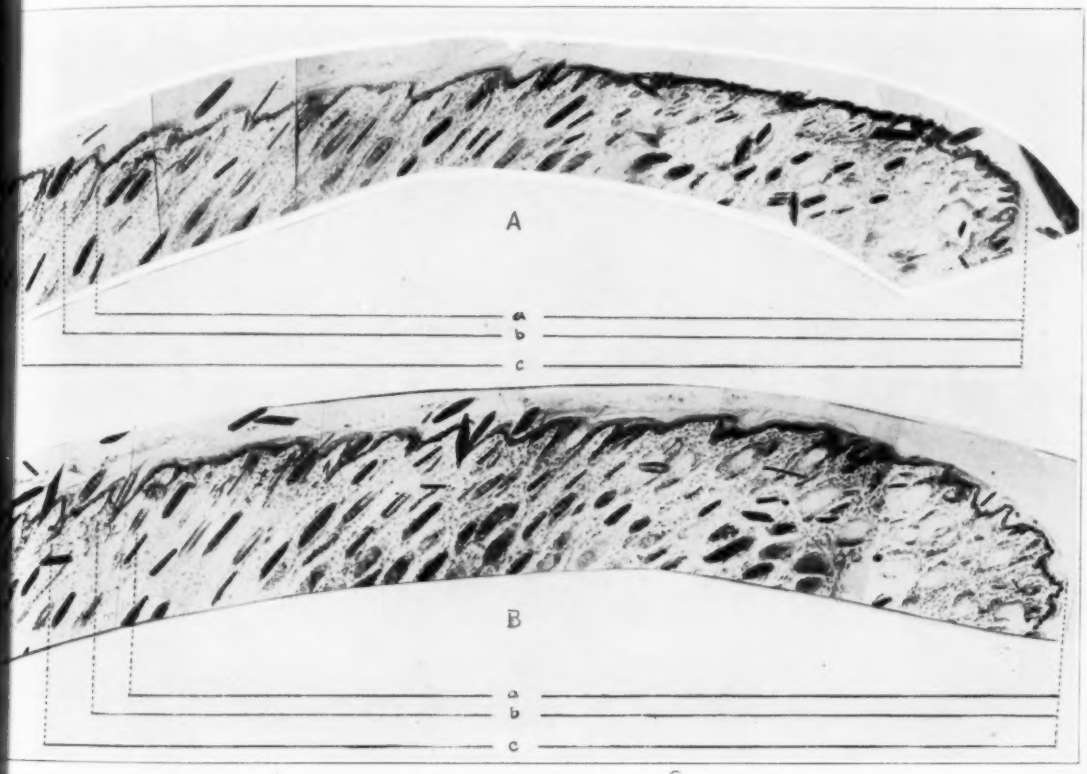


Fig. 13.—Photomicrograph of serial cross-sections from the ear of a 10 day old rabbit, same block as figure 12. *A* and *B* are five sections apart (40 microns); the original magnification was × 200, which has been reduced to the present size. The dendritic cells *a*, *b* and *c* in *A* can be seen in *B* to be peripherally situated cells belonging to hair follicles.

seen in the cutis were peripherally situated melanoblasts belonging to hair follicles. While the hair matrix cells and hair shafts contained a great deal of pigment, the epidermis of the skin and follicles rarely contained a pigmented cell. At no time during the development of pigment from that region was pigment seen in mesodermal elements; even on the

twelfth day of postuterine life (fig. 14) at the time when the greatest number of them were seen in the cutis in sections from the ear. Both the epidermis of the skin and the hair follicles, however, possess the latent power to build pigment after exposure to chemically active light rays (fig. 4).

To explain the lack of such pigmented cells in the cutis in this region one would have to assume—if one agreed with del Rio-Hortega in his interpretation—that the melanoblasts of the ear were of mesodermal origin, while those of the back were of ectodermal origin. Another

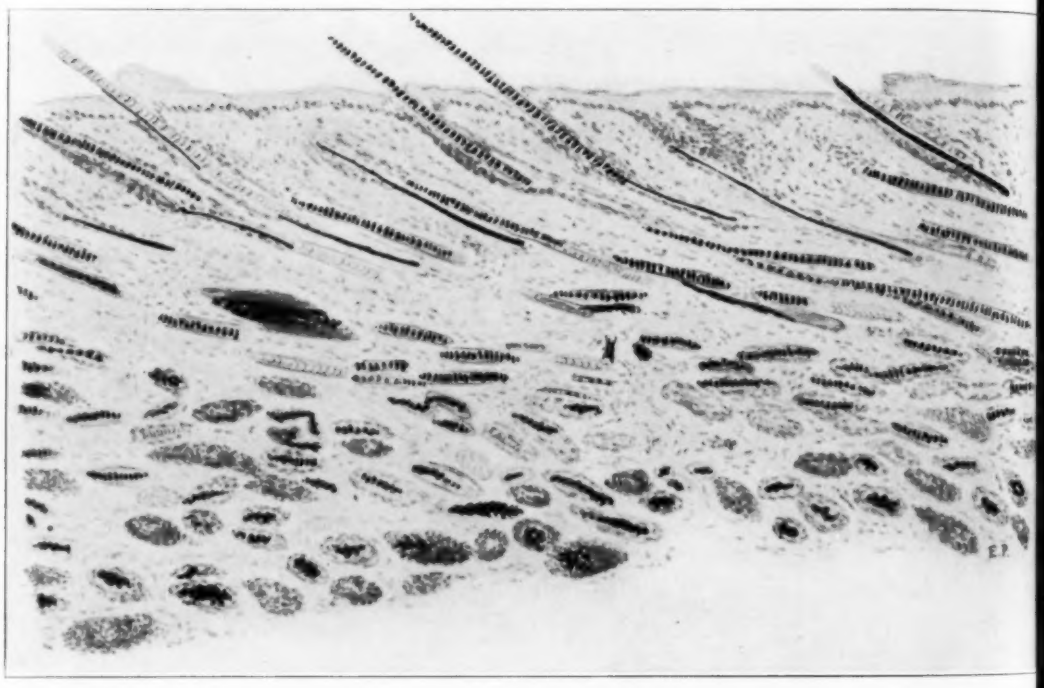


Fig. 14.—Section from the dorsum of a 12 day old rabbit; paraffin, methyl green-pyronin. There are many pigmented hairs. The epidermis and follicular epidermis are unpigmented. Note the absence of pigmented cells in the cutis. A section from the ear at the same period (fig. 5) shows many pigmented cells in the cutis that are really peripherally situated melanoblasts belonging to pigmented hair follicles.

possibility would be to assume that in the ear there are mesodermal melanoblasts that exist for only a short period in the development of the animal. I do not believe, however, that one needs to look for such far-fetched explanations to interpret the pigmented cells that seem to lie in the cutis, in view of the proofs that have been brought forward to show that they are really follicular epidermal elements.

The epidermis of the skin and hair follicles of the tail, especially on its dorsal surface, contained more pigment than that of the corresponding structures on the back of the rabbit, but much less than those of the ear. Examination of the 24 hour to 17 day old sections also showed a few pigmented cells in the cutis, which were proportional to the relatively lessened degree of pigmentation in the epidermis and follicles as compared to the ear.

CONCLUSIONS

1. Melanin formation was seen to begin in the epidermis and hair matrix cells of the bulb in the 85 mm. embryo of gray rabbits, while the cutis and papillae were entirely free from pigment. Pigment formation was autochthonous in the ectodermally derived melanoblasts of the epidermis and hair; the mesoderm played no part in this process.

2. The conclusions of del Rio-Hortega about the mesodermal origin of the melanoblasts of the epidermis and hair were based on misinterpretations. The melanoblasts that seemed to lie in the cutis, and which he assumed to be mesodermal elements, have been shown to be peripherally situated melanoblasts belonging to the follicular epidermis and upper epidermal hair sheets.

3. The dopa reaction became positive with the beginning of pigment formation in the melanoblasts of the skin, hair and eye. It was the first evident step in the process of pigmentation, and its duration and intensity was an index of the degree of pigment formation.

4. From the beginning of pigment formation and throughout its active stages, the dendritic melanoblasts were much more numerous than the nondendritic ones; at the height of pigment production nearly all of the melanoblasts showed a dendritic form.

5. The old pigment was disposed of by being cast off with the scales. Chromatophores did not take part in this process in the pigment formation herein described.

Biography

HENRI HALLOPEAU*

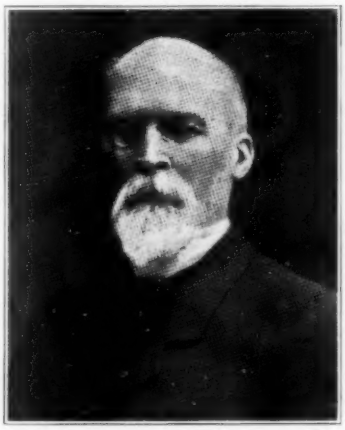
B. BARKER BEESON, M.D.
CHICAGO

François Henri Hallopeau, one of his country's outstanding dermatologists, was born in Paris on Jan. 17, 1842. He was a brilliant scholar at the Lycée Condorcet and always took pride in relating that while there he won the prize in history, after a bitter contest, from Anatole Læroy-Beaulieu, later a well known author. Hallopeau entered the Paris Medical School at the age of 24. Three years later he was second among a large number of candidates for Parisian internships. His thesis, submitted in 1871, dealt with the convulsive symptoms in disorders of the spinal cord. Hallopeau became physician to the Hospitals of Paris in 1877, and the next year he was successful in the concours for the position of Professeur agrégé. The Academy of Medicine elected him to membership in 1893. Hallopeau submitted two aggregation theses, one of which was devoted to the bulboprotuberantial paralyses while the other was dedicated to an exhaustive review of the physiologic and therapeutic action of mercury. In a most interesting sketch on Hallopeau, Milian said, that in this latter thesis he hinted at the microbic origin of syphilis. Hallopeau's first hospital service was at Tenon, afterward at Saint-Antoine, and in 1884, he elected to move to Saint Louis where he remained until his retirement in 1907. During his first three years as an agrégé, Hallopeau gave a course in neurology which, along with general pathology, were his subjects of predilection until his arrival at Saint Louis. It was indeed a surprise, said Gilbert, when Hallopeau elected to take up dermatology since he had already acquired quite a reputation in pathology, especially neuropathology, and had moreover written a treatise on general pathology which appeared that same year.

The amount of work done by this man was truly enormous, his publications totaling 800. As he was not a sound sleeper, he often arose in the middle of the night in order to work for an hour or two. From 1880 to 1885, he appeared frequently before the Société de biologie. Later he was a consistent contributor to the programs of

* The following articles have been written on Hallopeau: Jeanselme, Edouard: L'oeuvre scientifique d'Hallopeau, Ann. de dermat. et syph. **7**:232, 1918-1919. Milian, G.: Le Docteur H. Hallopeau (1842-1919), Paris méd. **32**:135, 1919.

both the French Dermatological Society and the Academy of Medicine. In 1884, his book on pathology was published. It became popular almost at once and was the leading textbook in France for twenty years, besides being translated into Spanish, Turkish and Greek. The sixth and last edition, prepared in collaboration with Apert, was published in 1911. In 1900, with the late Émile Leredde, Hallopeau wrote a book on dermatology which received prizes from both the Academy of Sciences and the Faculty of Medicine. This book was original in that it was an attempt at classifying the disorders of the skin according to etiology. Ten years later, with his pupil Charles Fouquet, Hallopeau wrote an extensive treatise on syphilis.



HENRI HALLOPEAU, M.D.
1842-1919

Brocq credited him with the first complete description of the atrophic form of lichen planus. Hallopeau also described (1889) a peculiar pustular dermatitis which many believe to be a benign form of Neumann's pemphigus vegetans. In 1890, he drew attention to an obstinate infection, especially of the digits, which he christened acrodermatites continues. One of the first French cases of acanthosis nigricans was shown by him before the French Dermatological Society. Mycosis fungoides was a pet of Hallopeau's, since he dedicated no less than twenty-six papers to it. He was a pioneer in the differentiation between érythème prémycosique and eczema. Trichotillomania was early described by him. He was greatly interested in leprosy and wrote considerably about it besides taking a leading part in the leprosy congresses. Hallopeau wrote much about lupus vulgaris. A considerable number of his articles were written in collaboration with his outstanding pupil, Jeanselme, who was the successor to Gaucher.

Syphilis and its treatment interested him intensely. Even in advance of Ehrlich, we are told, he was able to retard the appearence of the secondary lesions and in some instances to even abort the disease. Jeanselme stated that this was accomplished by an intensive mercurial and arsenical treatment. Of the arsenicals, Hallopeau first employed sodium arsenate and later sodium acetyl arsanilate but abandoned them both because of their tendency to produce optic neuritis. He then adopted hectine as the best arsenical for syphilis and supported it most loyally. Later, before the Academy of Medicine, he courageously admitted that he had been overenthusiastic about it.

Hallopeau's unceasing labor brought him wide recognition. After serving as secretary-general of the French Dermatological Society, he was its vice president. He was a member of most of the foreign dermatological societies among them those of Belgium, Italy, Berlin, Vienna, Moscow and Kiev.

On the retirement of Fournier in 1902, Hallopeau contested for the chair with Gaucher and lost by but a single vote. Even this cruel disappointment could not dampen his indomitable energy, and he worked on up to his retirement and thereafter acted as consulting dematologist to the Maison Departementale at Nanterre, close to Paris. So he carried on up to Oct. 1, 1919, when being almost blind and barely able to walk he was at last compelled to become inactive. Hallopeau attended the opening session of the French Dermatological Society after the cessation of hostilities and a few days before his death in March, 1919, he paid a farewell visit to the Museum at Hospital Saint-Louis where a large number of moulages perpetuate his memory.

Personally, he was most affable and deserving of the title "le Pere Hallopeau." After his defeat for the chair of dermatology, he bore no malice toward Gaucher but even attended his inaugural lecture and also voted for his admission to the Academy of Medicine, a striking example of generosity.

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Correspondence

KERATOLYSIS EXFOLIATIVA AND THE MOSAIC FUNGUS

To the Editor:—The paper on keratolysis exfoliativa read by George M. MacKee at the 1930 meeting of the American Dermatological Association is most interesting, and might almost persuade one to believe that the mosaic fungus is a degenerated pathogen. Still I am not convinced.

The eruption described as keratolysis exfoliativa is fairly common and is usually overlooked by the patient because it gives no trouble, but it seems to me hardly worth while to set it up as a "disease entity." It is rather a type of exfoliation which may presumably occur under various conditions, one of which is in combination with tinea. In this combination, it is to be considered as a form of trichophytid. In a case reported by me (Williams, C. M.: ARCH. DERMAT. & SYPH. **13**:661 [May] 1926) the thin flakes were loaded with mycelia. This brings up the whole question of trichophytid and similar eruptions. They are now explained as the reaction of a sensitized skin either to organisms or to their toxins; the presence or absence of the parasite is of minor importance. The essential feature of this explanation is the assumption of a preliminary sensitization of the skin. A part of the response is usually the partial or complete destruction of any parasite that may reach the affected part. Whether parasites are present locally or not, the reaction must be caused by toxins produced during the life or disintegration of the parasite. The eruptions on the hands, which are usually sterile, and those on the feet, which are usually fertile, are, therefore, essentially of the same nature; all are toxic; all, in a sense, are dermatophytids. Other facts point to the altered reaction of the skin as one of the most important factors in the disease. In many typical cases, a large proportion of the lesions on the feet contain the organism in scanty numbers or not at all, while in severe cases, the finding of the organism is often excessively difficult or impossible. Some of the severe cases are accompanied, at or near the site of the original infection, by a severe but superficial dermatitis, which is usually sterile. The altered reaction of the skin, therefore, expresses itself in two ways: first, by hypersensitiveness to the poison of the disease and a variety of types of inflammatory response, and, second, by a more or less complete destruction of the organism. These two responses seem to depend on different factors, as pointed out by Chesney in syphilis (Harvey Lectures, 1929-1930, p. 120). The allergy that permits the development of keratolysis exfoliativa does not always interfere with the growth of mycelia in the flakes. The work of Walthard, Peck, Jadassohn and Sulzberger has thrown light on the problem, but much remains to be done. Why does the secondary eruption occur by predilection on the hands and feet—on the hands, with a primary focus on the foot, on the feet with a primary focus on the hand, on hands and feet with primary foci in groins and axillae, all of which have been observed? One can often predict from the clinical appearance that the finding of fungus in a secondary rash will be difficult or impossible, even when this rash is within a few inches of the original focus. Why is it that lesions apparently identical clinically, and occurring at or near the site of infection, are sometimes sterile, and sometime fertile? I must confess that the selection of a lesion that will be rich in mycelia is largely a matter of chance.

Dr. MacKee reports finding mosaic and typical mycelia in the same specimen. This I can confirm, and more, I have frequently seen both in the same field, but in spite of careful and repeated examination, I have never been able to trace any continuity between the two.

In discussing the usual failure to find typical mycelia in the scaly and vesicular varieties of dermatomycosis, especially of the hands, Dr. MacKee states that if they are toxic, they should disappear when the original focus has been cured. This conclusion is not warranted, because it assumes what is as yet not proved, that allergy in tinea is transient and disappears when the supply of toxin ceases. It may well be that the reaction of the skin to external irritants is permanently altered. In any case, definite cure of tinea pedis is hard to prove. Only last week a patient consulted me for a mild pruritus of the legs—"winter itch." He had come to me nearly six years before for the same condition, and at that time a routine examination revealed a mild tinea pedis, confirmed with the microscope, with no subjective symptoms. Last week the feet showed no sign of disease, except slight erosions of the toe-nails, but flakes from the fifth right toe-nail were loaded with mycelia.

CHARLES M. WILLIAMS, M.D., New York.

Abstracts from Current Literature

EDITED BY HERBERT RATTNER

THE ROENTGENOGRAPHIC AND PATHOLOGIC ASPECTS OF CONGENITAL OSSEOUS SYPHILIS. STAFFORD MCLEAN, Am. J. Dis. Child. **41**:130 (Jan.) 1931.

The author gives an excellent summary of the literature on congenital osseous syphilis from both a historical and a contemporary standpoint.

ANDERSON, Los Angeles.

PROGRESSIVE POSTOPERATIVE GANGRENE OF THE SKIN. MAX BALLIN and PLINN F. MORSE, Am. J. Surg. **11**:81 (Jan.) 1931.

Four cases are reported of gangrene of the skin following draining wounds. The gangrenous areas spread rapidly to form a serpiginous outline and should be treated surgically. Reports of fourteen similar cases were found under several different names. Streptococci were discovered in most of the cases, but staphylococci and diphtheroid bacilli were also isolated. The four cases reported are considered chiefly from the standpoint of treatment. The authors excised the area with an electrocautery knife, and skin grafts were made later.

AN UNUSUAL TUMOR OF THE NIPPLE. ELLIS FISCHEL and LOUIS H. JORSTAD, Am. J. Surg. **11**:121 (Jan.) 1931.

The authors were unable to determine from microscopic studies whether they were dealing with Paget's disease or keratosis, such as is seen on other parts of the body. It is possible that the section which they studied showed changes due to treatment, for the growth was verrucous and had been removed by desiccation. The wound had not healed even after roentgen exposures, so that it was necessary to excise the nipple. Photomicrographs are shown.

DERMATONEUROMYOSITIS RESULTING IN SCLERODERMA. WALTER O. KLINGMAN, Arch. Neurol. & Psychiat. **24**:1187 (Dec.) 1930.

Attention is called to the fact that certain sclerodermal conditions are the result of dermatomyositis or dermatoneuromyositis in which trophic changes develop. The various theories as to etiology are reviewed, and twelve cases are reported, from which the following conclusions were drawn: 1. Rheumatic infection either precedes or accompanies the appearance of the sclerodermal syndrome. 2. The concomitant changes in the skin, muscles, nerves, bone or other areas seen in typical scleroderma are the result of rheumatic toxins in many instances. 3. The severest types, those in which there are concomitant changes in the skin, muscles and nerves, result in a classic sclerodermal syndrome, whereas in those in which changes in the skin and muscles only are associated, trophic disturbances do not develop because of the absence of nerve lesions.

H. RATTNER, Chicago.

CONGENITAL SYPHILIS OF THE ADRENAL GLAND. G. L. FITE, Bull. Johns Hopkins Hosp. **48**:1 (Jan.) 1931.

Microscopic examination of the suprarenal glands in 250 cases of congenital syphilis revealed abnormalities of the cellular structure of the gland in only 40 cases. In practically every case of congenital syphilis in which spirochetes were found, they were demonstrable in the suprarenal gland. Spirochetes are often present in great numbers without other pathologic alteration of the tissue. Other observations included the occurrence of islands of blood-forming cells in the gland, coagulation necrosis and an extraordinary amount of connective tissue in the capsule which was very cellular. No gummas were found.

STUDIES IN EXPERIMENTAL SYPHILIS: IX. THE DISTRIBUTION OF THE RESISTANT STATE IN "IMMUNE RABBITS." A. M. CHESNEY and T. B. TURNER, Bull. Johns Hopkins Hosp. **48**:90 (Feb.) 1931.

An experimental study of the immunity of rabbits to syphilis is reported with particular reference to the occurrence of lesions after reinoculation. The distribution of acquired resistance in syphilis is discussed from the results of the experiments.

ANDERSON, Los Angeles.

COMPARATIVE BIOLOGIC AND HISTOLOGIC STUDY OF LYMPH GLANDS FROM SYPHILITIC PATIENTS. ELI SALEEBY and SIGMUND S. GREENBAUM, J. A. M. A. **96**:98 (Jan. 10) 1931.

An attempt is made to correlate the finding of *Spirochaeta pallida* in sections of inguinal lymph nodes by the silver impregnation staining method and, with the biologic method, by injecting an emulsion from the same lymph node into the testes of rabbits. In this way the authors hoped to throw some additional light on the morphology, the efficiency of our staining methods, the importance of the biologic method for diagnosis and, in an indirect way, on the transmissibility of *Spirochaeta pallida*. Inguinal lymph glands were removed from twenty-one syphilitic patients. *Spirochaeta pallida* was found in five; dark stained granules in the others. In the animals, thirteen became positive after the first transplant and three after the second. A study of the organs from nine of the positive rabbits showed that the testes were positive in all the cases, the lymph glands in five, and the heart and aorta in two. Dark stained granules were found in most of the glands, and in the heart and aorta in one. They were mainly in the lymphocytes. These results suggest the possible occurrence of a granular form of spirochete. The failure to find the organism in the remote tissues is partly due to the fact that after leaving the original focus of infection, the majority are broken into granules by phagocytic cells, probably the lymphocytes, for there is an accumulation of the granules in the lymphocytic cells of the lymph glands.

THERAPY WITH LONG WAVELENGTH X-RAYS (GRENZ RAYS). FRANCIS CARTER WOOD and GEORGE M. MACKEE, J. A. M. A. **96**:111 (Jan. 10) 1931.

In this article Grenz rays are considered from every angle: physics, biologic effects, apparatus, technic, cutaneous reactions, and therapeutic indications and results. The authors feel that Grenz rays have a limited field of usefulness; that it is doubtful whether any skin disease (not an individual case) can be cured with Grenz rays that cannot be cured with roentgen rays of shorter wavelengths or with beta rays of radium. They list the conditions under which good results have been claimed for Grenz rays, and point out that the published reports are meager and come from comparatively few workers. There is need for corroborative reports before the real value of Grenz rays can be ascertained. A full bibliography is appended, and the article, though brief, is an excellent summary of the subject.

GASTRIC SYPHILIS. GEORGE B. EUSTERMAN, J. A. M. A. **96**:173 (Jan. 17) 1931. ROENTGEN DIAGNOSIS OF GASTRIC SYPHILIS. LEON THEODORE LEWALD, ibid. **96**:179 (Jan. 17) 1931.

Both authors agree that gastric syphilis occurs more commonly than is generally supposed. Eusterman reviews the clinical aspects of ninety-three cases that he studied. On the basis of symptoms, these are divided as follows: a pseudocancer group (15 per cent) in which the onset is gradual and the symptoms steadily become worse; an ulcer group (23 per cent) in which the "pain-food-ease" sequence seen in ulcer was outstanding; and a third and largest group (63 per cent) in which the patients complain of pain immediately after eating, with a proportionate increase in discomfort as more food is taken. In this type the

clinical course becomes progressively more severe. LeWald's paper points out the roentgenologic characteristics of gastric syphilis. Both authors feel that in cases of syphilis in which a gastric lesion is present the condition should be regarded as syphilitic until it is proved otherwise. The prognosis is good. Eusterman's cases showed 79 per cent of patients cured or much improved, 11 per cent slightly improved and 10 per cent unimproved.

Observations on the Treatment of Syphilis of the Liver. Paul A. O'Leary, J. A. M. A. **96**:183 (Jan. 17) 1931.

This is a critical analysis of 140 case reports of hepatic syphilis. The various types of lesions that can occur in syphilis of the liver are described, i. e., the hepatitis of acute syphilis, the occult or asymptomatic hepatitis and the late hepatic lesions, such as, diffuse hepatitis, gumma and cirrhosis. The treatment should be limited to the use of mercury and iodides over a long period of time. In a few cases of late hepatic syphilis, decided benefit was obtained from treatment with arsphenamine. More important than the treatment in influencing the eventual course of the disease is the type and degree of complication existing at the time treatment is instituted. If practically all the hepatic cells are involved in the process, arsphenamine and mercury may result in further damage. If the hepatitis is less extensive, these drugs may be used. When the extent is not known, small doses, gradually increased, of iodides and mercury are indicated. The Wassermann reaction in these cases usually remain positive and no attempt should be made to reverse it by intensifying treatment. Under this regimen the life expectancy is three times greater than when arsenicals are used.

Maduromycotic Mycetoma (Madura Foot). Jack W. Jones and Herbert S. Alden, J. A. M. A. **96**:256 (Jan. 24) 1931.

A case of madura foot is reported in an American Negro: a maduramycotic mycetoma producing white granules. The organism was classified as *Scedosporium opiospermum*. The characteristics are presented along with photomicrographs.

The Rôle of the Positive Wassermann Reaction in Gynecologic Surgery. Louis C. Scheffey, J. A. M. A. **96**:261 (Jan. 24) 1931.

Routine Wassermann tests performed in about 2,500 cases in a gynecologic clinic were positive in 7.6 per cent of instances. In practically none of the cases was there any other evidence of syphilis. Scheffey evaluates the case of syphilis from a medical rather than a purely surgical standpoint. The patient is not a greater surgical risk merely because of the syphilitic infection. His statistics show that syphilis does not increase the time of the healing of the wound; it does not complicate the operative procedure, and it does not cause more infection. A single injection of arsphenamine is given before the operation to protect the physician, and on completion of convalescence, follow-up treatment is instituted.

Infectious Recurrence and Mucocutaneous Relapse in Syphilis. John H. Stokes, John H. Bensancon and Arthur G. Schoch, J. A. M. A. **96**:344 (Jan. 31) 1931.

This paper is the result of a study of 60 relapses in 56 patients among 2,439 cases of syphilis, 911 of which were in the primary or secondary stage. It is pointed out that the subject of reinfection appears in the literature much more often than relapse. Their records show that reinfection constitutes only 0.16 per cent of the material in their study, while relapse was fourteen times as frequent (2.2 per cent). The authors then discuss relapse from the standpoint of public health and the difficulties in diagnosis. The morphology of the lesions are described; their localizations, time of onset, infectiousness and relation to treatment are all fully considered.

The significance of serologic observations in periods of relapse are discussed and the treatments for both original infections and relapse are outlined. The literature is referred to frequently, and the article is well illustrated with drawings and tables.

RADIOTHERAPY FOR INFLAMMATORY CONDITIONS. ARTHUR U. DESJARDINS, J. A. M. A. **96**:401 (Feb. 7) 1931.

Among the conditions in which x-rays are of distinct value are furuncle, carbuncle, abscesses of soft tissue, peridental infection, acute adenitis, onychia, paronychia and erysipelas. In all of these, small doses are preferred; only one or two treatments are necessary, and the x-rays are applied to a zone which includes normal tissues well around the lesion. The dose should be from one-tenth to one-half the erythema dose. Desjardins assumes that the infiltrating cells, leukocytes and lymphocytes contain or elaborate within themselves the protective substances or other means which enable them to destroy or neutralize the bacterial or other toxic products that give rise to the defensive inflammation. Irradiation by destroying the infiltrating lymphocytes causes a liberation of the protective substances and makes them even more readily available for defensive purposes than they were in the intact cells. He cites the following evidence: The rapidity with which irradiated inflammatory lesions recede corresponds to the rate at which normal lymphocytes are known to be influenced by x-rays, and a small dose of irradiation is sufficient to procure the desired effect. Also, roentgen therapy is most beneficial during the infiltrative stage of the inflammatory process. In his experience roentgentherapy has been without effect in a relatively few cases, but there has never been an unfavorable action. The patients who have been benefited have been given a small or moderate dose of x-rays. The literature is critically analyzed and a full bibliography is appended

RATTNER, Chicago.

BOWEN'S DISEASE OF THE MUCOSA: A STUDY OF ITS NATURE BASED ON THREE NEW CASES. J. NICOLAS, G. MASSIA and J. ROUSSET, Ann. de dermat. et syph. **1**:1113 (Nov.) 1930.

A woman, aged 34, had a shallow erosion on the internal surface of the labia majora. There was no infiltration of the base, but the border was slightly raised and infiltrated, nacreous and hyperkeratotic. The lesion, of five years' duration, disappeared after two intensive roentgen treatments. In a second patient, a woman, aged 50, lesions had been present for a long time. In addition, there was definite inguinal adenopathy which had become more pronounced shortly before the original examination of the patient. The lesions were round, nonulcerated, slightly indurated and limited by a raised border. The largest lesion was on the right labium minus, the left being the site of insignificant alteration. Roentgen therapy cleared up the vulval lesions. The enlarged lymph node was excised and the region irradiated. This was followed by complete disappearance of the adenopathy. A man presented on the glans penis a small sharply defined red noninfiltrated patch, with a dry, smooth surface.

In all these cases biopsies revealed the characteristic picture of Bowen's disease. The inguinal gland removed in the second case showed the same features.

The authors found fourteen cases of Bowen's disease of the mucous membranes recorded in the literature. This represents about 20 per cent of the reported cases. About two thirds of the cases of mucosal involvement have occurred in females. On the mucosa, in contradistinction to the skin, a clinical diagnosis of the disease is impossible. Biopsy must settle the question. In the authors' experience, roentgen therapy has proved entirely satisfactory.

CUTANEOUS ALLERGY TO HORSE SERUM IN SYPHILIS. A. SÉZARY and M. COUMETOU, Ann. de dermat. et syph. **1**:1138 (Nov.) 1930.

The authors have been unable to confirm the observations of Dujardin on the significance of cutaneous reactions to horse serum. Dujardin believed that a prognostic value was inherent in the patient's reaction to intradermal horse serum: for example, an anergic reaction after the early stages indicated a graver prognosis since it was found in cases of neuraxial syphilis, while a pronounced reaction of the skin was uniformly present in more benign late lesions.

Sézary and Coumetou, while finding somewhat the same conditions, have been unable to read into them the same interpretation.

OCCUPATIONAL DERMATITIS FROM ARSENIC. P. VIGNE, Ann. de dermat. et syph. **1**:1150 (Nov.) 1930.

Vigne reports a thorough study of occupational dermatitis from arsenic. His patients were workers in a chemical plant specializing in agricultural insecticides. The base of these products was arsenious anhydride, from which were elaborated sodium and lead arsenate, paris green, etc.

The workers were protected by masks and gloves, but sometimes discarded them because they were inconvenient. The atmosphere of the plant contained a considerable quantity of the powdered products, especially where the laborers prepared the boxes and barrels of the chemicals for shipment.

Vigne gives ten case histories. Symptoms began to appear in from four to five days after exposure. The patients all showed symptoms of systemic arsenical effects, which varied considerably from case to case. The cutaneous manifestations were of two types: superficial vesicular, vesicobullous, crusted dermatitis localized chiefly on the face and the scrotum, and ulcerations mainly occurring on the extremities. The former lesions disappeared promptly under appropriate measures; the latter, however, responded slowly.

Microscopic examination of a vesicular and crusted lesion revealed profound necrosis especially affecting the cellular elements of the epidermis and derma without involving the collagen, and an abundant polymorphonuclear infiltration.

By application of the chemicals to the skin, the author was able to produce lesions similar to those encountered in the occupational disease. He found that arsenious anhydride produced the most powerful and prompt effect. In fact, this anhydride and its compounds seemed alone capable of producing the conditions found clinically. Experimentally, the application of the dry or moistened powder (anhydride or paris green) to the dry, sound skin produced no manifestations unless certain conditions were present. These conditions were mainly the presence of seborrhea, sweat, saliva, etc.—organic secretions which fixed the chemical and favored its action by maceration. These conditions sufficed for the development of the superficial lesions; for the ulcerations, excoriations, fissures or traumatism permitting the penetration of minute amounts of arsenic were required.

Vigne also discusses the medicolegal aspects of this occupational dermatitis. In France the law does not permit compensation to the workers, requiring only that certain precautions be taken to protect them. It is evident that the law should be modified in favor of the workers, and a movement is on foot to so change it.

ORIENTAL BOIL: ATYPICAL FORMS (INFILTRATED). P. B. PHOTINOS, Ann. de dermat. et syph. **1**:1184 (Nov.) 1930.

Photinos describes and illustrates two cases of this disease in which the lesions were infiltrated raised plaques resembling large papular syphilis or certain types of nonulcerated lupus vulgaris. The individual lesions varied in size from those as small as a pea to one occupying almost the entire central portion of the face. They were irregularly raised, a dull bluish red, sharply defined, firm and partially covered with crusts or scales. The diagnosis was verified by microscopic examinations.

TREATMENT OF VERRUCA PLANTARIS BY ELECTRO-COAGULATION. P. COIGNERAI, Bull. de l'hôp. Saint-Michel **2**:369 (Nov.) 1930.

The method used by the author consists in employing bipolar electrocoagulation under local anesthesia. The treatment does not prevent the patient from continuing his occupation.

MICHAEL, Houston, Texas.

IDIOPATHIC CRAW-CRAW CURED BY NEOARSPHENAMINE. GOUGEROT and RAGU, Bull. Soc. franç. de dermat. et syph. **37**:1160 (Nov.) 1930.

The authors report a case of this disease, previously resistant to a number of therapeutic measures, which rapidly receded after the institution of injections of neoarsphenamine. Gougerot and Ragut consider craw-craw as a cutaneous syndrome evoked by various pathogenic agents (*Filaria, Treponema,* etc.) as well as a variety which is idiopathic. In the latter group, neoarsphenamine should always be tried.

PITYRIASIS RUBRA PILARIS CURED BY THE VACCINE OF VANDREMER. H. GOUGEROT and J. LAFFITTE, Bull. Soc. franç. de dermat. et syph. **37**:1168 (Nov.) 1930.

A case of this disease is reported in which persistence in the employment of the vaccine was rewarded by cure. Four courses of injections over a period of about a year were required.

A DUCREY BACILLUS CARRIER DEMONSTRATED BY INTRADERMAL INOCULATION. P. RAVAUT, RABEAU and D. HESSE, Bull. Soc. franç. de dermat. et. syph. **37**:1178 (Nov.) 1930.

In a young woman, with a unilateral nonsuppurative bubo, Ravaut, Rabeau and Hesse demonstrated the presence of Ducrey's bacillus in the vulvar and vaginal secretions, by intradermal inoculation. This is the second time that they have found a carrier of this organism. There was no history or other evidence of a previous chancroid, but the patient had contracted syphilis about eighteen months previously.

THE PROBLEM OF THE ETIOLOGY OF ACNE VULGARIS. E. RAMEL, Bull. Soc. franç. de dermat. et syph. **37**:1193 (Nov.) 1930.

All cases of acne vulgaris show small nodules beginning in the hypoderm, which slowly soften, rupture and give exit to a small amount of grumous material. These lesions always leave scars. After several years attentive clinical study of these lesions, Ramel was struck by their clinical resemblance and course to the lesions of tuberculosis colliquativa (gommes tuberculeuse). The nodules are replicas in miniature of this well known tuberculous manifestation. Investigation of the contents of these small nodules showed the presence of acid-fast bacilli and the granulations described by Fontes in old cultures of tubercle bacilli. Inoculations into guinea-pigs with the material obtained from ten cases of acne showed the development of tuberculosis in the animals in six instances. The progress of the tuberculosis in the guinea-pigs was unusually slow, requiring about four months to cause death. Autopsy showed that the tuberculosis was of a fibrous type, but in a few subsequent reinoculations, the tuberculosis became frankly virulent for the animals. The animals inoculated from the other four cases showed no frank tuberculosis, but successive inoculations from these animals finally eventuated in a rapidly fatal type of tuberculosis for the guinea-pig (increase of virulence by successive transfer). Ramel believes that these results permit the statement that the nodules of acne vulgaris contain an attenuated form of tubercle bacilli. He sees in acne a hematogenous tuberculosis, the apparition and localization of the disease being determined by puberty and seborrhea. The comedones, papules and pustules are merely features of the kerotic state, of which seborrhea is the fundamental constituent.

Ramel has found tubercle bacilli in the urine in 6 cases of acne which he investigated for the presence of these organisms. In these patients there was no indication of tuberculous infection of the urinary tract. He thinks that in these cases there was a transitory tuberculous bacteremia. Ramel adds that acne is frequent in frank tuberculosis; Griesbach found it in 30 per cent of over 18,000 inmates of sanatoriums for tuberculosis.

COMPARATIVE STUDY OF SCIARRA'S SEROREACTION AND SOME OTHER REACTIONS IN SYPHILIS (WASSERMANN, HECHT, DESMOULIERE REACTIONS). R. J. WEISSENBACH and J. MARTINEAU, Bull. Soc. franç. de dermat. et syph. **37**:1204 (Nov.) 1930.

Sciarra has developed a seroreaction in syphilis based on the phenomenon of complement deviation. The reaction consists in mixing ethyl alcohol in certain proportions with the test serum, adding complement and a hemolytic system and reading the reaction after incubation.

In this preliminary report, the authors record an unstated number of comparative tests. They believe that the reaction merits the attention of syphilographers. It probably places in evidence certain serologic changes which are of different nature than those revealed by other reactions. Sciarra's reaction becomes positive in primary cases before the other tests and remains positive for a longer time in well treated cases. Extensive studies are in progress and will be published.

MICHAEL, Houston, Texas.

X-RAYS AND RADIUM IN DERMATOLOGY. J. CAPPELLI, Gior. ital. di dermat. e sif. **71**:896 (Aug.) 1930.

This article is a review of the advances of radium and roentgen therapy in dermatotherapeutics. The author considers in extenso the physical and biologic actions of radiation, the hypersensitivity, sensibilization and allergy of the skin, the "limit rays" or Bucky rays, and the treatment of different groups of cutaneous diseases with roentgen rays and radium. The article is a valuable contribution to roentgen therapy as practiced in Europe.

FUNDAMENTAL PRINCIPLES OF RADIOTHERAPEUTIC TECHNIC IN DERMATOLOGY. ALESSANDRO VALENTI, Gior. ital. di dermat. e sif. **71**:936 (Aug.) 1930.

This is the second article of a symposium on roentgen rays and radium read at the twenty-sixth meeting of the Italian Society of Dermatology, held in Rome in April, 1930. The author reviews the present knowledge on the qualitative and quantitative measurement of roentgen rays. It is to be noted that the author entirely ignores the remarkable work done in America by MacKee and his co-workers on this subject.

RADIUM EPILATION OF THE SCALP. M. SCÓPESI, Gior. ital. di dermat. e sif. **71**:949 (Aug.) 1930.

The author used radium in 600 cases of tinea of the scalp with good results. He divides the scalp into three zones, applying 60 mg. of radium filtered through platinum to each zone for twenty-four hours. The distance is not stated. In no case has he observed any disturbance attributable to the action of the radiation on the nervous system. Regrowth of hair has always been satisfactory. All of the children were observed during an average of one year. The author claims that radium has several advantages over roentgen rays, among them the greater margin between the epilating and the erythematous doses and its easier use in small children, for absolute immobility is not necessary.

ROENTGEN RAY ERYTHEMA. P. A. MEINERI, Gior. ital. di dermat. e sif. **71**:951 (Aug.) 1930.

After a short period of latency, roentgen rays produce a bright erythema, which lasts for about two months, ending in pigmentation. In the experience of some observers, this erythema follows an undulating course, increasing and decreasing in intensity until its final disappearance. Tests performed on the erythematous skin with epinephrine, morphine and histamine gave results in no way different from those observed in the normal skin. The intensity of the erythematous reaction varies according to the region affected; thus equal amounts of x-rays applied to the skin of the dorsum and to that of the leg, resulted in a greater

reaction of the former, of longer duration and ending in stronger pigmentation. The white blood count in the erythematous area showed first a notable increase of polymorphonuclears and later an increase of lymphocytes. The pathologic anatomy of the region affected showed a distinctive characteristic consisting in the existence of numerous polymorphonucleated cells throughout the skin, due to a disturbed process of cell division.

MODIFICATIONS OF THE ALKALINE RESERVE OF THE BLOOD PLASM FOLLOWING RADIUM AND ROENTGEN THERAPY. C. MAZZANTI, Gior. ital. di dermat. e sif. **71**:955 (Aug.) 1930.

The author studied the alkaline reserve of the blood plasm in sixteen patients who were receiving radium therapy. In twelve there was a diminution in the alkaline reserve twenty-four hours after the application of the radiation, with a maximum of 10.5 per cent and a minimum of 1.3 per cent. Of these twelve patients, eight had tinea of the scalp, two carcinoma of the uterus and two carcinoma of the breast. In three patients with tinea, the alkaline reserve remained unchanged, and in one with tumor of the hypophysis there was an increase of 5.2 per cent.

In sixteen patients with tinea of the scalp under roentgen treatment, four showed a slight diminution and ten a slight increase of the alkaline reserve, and in two there was no change.

RADIOTHERAPY OF THE SPINE IN SOME DERMATOSES. M. ARTOM, Gior. ital. di dermat. e sif. **71**:959 (Aug.) 1930.

The author has used the Gouïn and the Pautrier technics in the treatment of several different dermatoses, with the following results:

In six cases of lichen planus, three were treated by Gouïn's method with immediate disappearance of the pruritus and reabsorption of the cutaneous lesions, but those of the mucosa of the mouth remained unimproved. Of the three cases treated by Pautrier's method, one showed no improvement at all, and two showed improvement of the subjective symptoms.

Two cases of neurodermatitis were treated by Pautrier's method with marked improvement.

Two cases of Hebra's prurigo were treated with Gouïn's technic, with no change in one case and rapid improvement in the other, followed by a relapse fifteen days later.

Two cases of urticaria of unknown origin were immediately relieved, and two others of alimentary nature were not improved.

Two cases of herpes zoster were treated by Pautrier's method with optimum results, the pain disappearing shortly after the application, and the cutaneous lesions drying up in three days.

In chronic eczema, senile pruritus, psoriasis and Duhring's disease there was no improvement.

V. PARDO-CASTELLO, Havana, Cuba.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

RÔLE OF SYPHILIS IN ETIOLOGY OF ANGINA PECTORIS AND CORONARY THROMBOSIS. A. S. WARTHIN, Am. Heart J. **6**:163 (Dec.) 1930.

Warthin analyzes 1,675 necropsies on persons over 25 years of age. Of this number, 408 males and 86 females showed the microscopic lesions of active latent syphilis. In about 50 per cent of cases the presence of *Spirochaeta pallida* was demonstrated. The highest incidence of these lesions was found in the aorta, in 97.6 per cent of cases for the first decade, 1909 to 1919, and in 86.3 per cent of

cases for the second decade, 1919 to 1929. In 169 cases of syphilis (1909 to 1919) there were 53 cases of coronary sclerosis without thrombosis, 9 cases of syphilitic disease of the coronary arteries, 1 case of coronary thrombosis and sclerosis, and no case with a clinical history of angina pectoris. In this decade there were 13 cases of sudden death without previous anginal history in the 169 cases of syphilis. Nine of these cases showed marked coronary sclerosis without evidence of syphilitic coronary involvement; 4 cases showed the lesions of coronary sclerosis and syphilis. In 9 of these cases there was a diffuse interstitial myocarditis of the syphilitic type; in only 4 was there a microscopic picture of myocardial infarction. In the decade 1919 to 1929, in the 332 cases of latent syphilis there were 172 cases of coronary sclerosis, and 55 cases showing syphilitic lesions of the coronary arteries, including 1 case of gummatous coronary arteritis. In this group there were 5 cases of coronary occlusion by thrombosis; 4 of these were associated with coronary sclerosis alone, and 1 with syphilis of the coronary artery. There were 6 cases of angina pectoris in this group; 5 of these were associated with coronary sclerosis alone, and 1 with syphilis of the coronary main branches. There were 25 cases of sudden death in this decade in the syphilitic group; in 13 of these the coronary arteries showed arteriosclerosis alone; in 12 cases there were lesions of syphilis in the coronary arteries, 6 of which showed both syphilis and sclerosis. Eleven of the cases of sudden death showed myocardial infarction, 14 showed no infarction, but the picture of a chronic diffuse interstitial myocarditis with fibrosis. Five of the cases of myocardial infarction were associated with occlusion, due to coronary sclerosis alone; 6 were associated with both sclerosis and lesions of syphilis. Comparing the nonsyphilitic cases coming to necropsy during the same two decades, 1,174 nonsyphilitic necropsies there were 412 cases of coronary sclerosis, with 6 cases of well defined clinical angina pectoris, 8 cases of coronary thrombosis and 8 cases of myocardial infarction. In 2 cases, sudden death from coronary thrombosis and myocardial infarction occurred without a history of angina.

Syphilis of Aorta and Heart. S. S. Riven and J. Feigenbaum, Canad. M. A. J. **23**:656 (Nov.) 1930.

Seventy-four cases of cardiovascular syphilis form the basis of this report by Riven and Feigenbaum. The ratio between males and females was 6.4 to 1. Sixty-four of the patients were white and ten were colored. The average age of all patients was 50 years, with extremes between 32 and 74 years. About two thirds of the cases occurred between 40 and 55 years. The average interval between the primary syphilitic infection and the onset of symptoms was twenty-four years. The most frequent presenting symptom was dyspnea on exertion. Paroxysmal dyspnea is much more commonly associated with marked cardiac enlargement than with aortic insufficiency. Pain was absent in half of the cases. A changed aortic second sound was found by itself or in association with a diastolic murmur at the base in forty cases. In half the patients the pulse pressure was over 80 mm. of mercury. There are apparently no characteristic changes in the blood pressure in syphilitic aortitis except when aortic insufficiency is present. In 10 per cent of the cases there was syphilis of the central nervous system. The Wassermann reaction of the blood was positive in 91 per cent of the cases.

Tularemia in Michigan Not Endemic. J. L. Murphy, J. Michigan M. Soc. **29**:917 (Dec.) 1930.

A case of tularemia of the ulceroglandular type is reported by Murphy. *Bacterium tularense* was isolated from a suppurating gland. This organism produced typical lesions in guinea-pigs and was agglutinated by the patient's serum. This case is the fifth reported in Michigan. So far, none of the reported cases have come from the rabbits of Michigan but from those shipped in from other states, such as Missouri, Tennessee and southern Illinois.

ARSPHENAMINE ENCEPHALITIS. W. M. SHEPPE, West Virginia M. J. **26**:732 (Dec.) 1930.

Sheppe relates the case of a man, aged 21, who had a penile chancre. Three injections of neoarsphenamine were given in approximately two weeks' time. The third injection was given at 3 p. m. on the thirteenth day of treatment. At 6 p. m. the patient was sitting, chatting with a group of friends, when he complained of feeling ill. Within a few minutes, convulsive movements of the arms and legs began and total unconsciousness rapidly supervened. A diagnosis of arsphenamine encephalitis was made. Chloral hydrate, 30 grains (2 Gm.), was given by rectum. Sodium thiosulphate 0.5 Gm. was given intravenously every six hours. Epinephrine hydrochloride, 1:1,000, was administered in 8 minim (0.5 cc.) doses every two hours. This was subsequently increased to 15 minims (1 cc.) every two hours. Hypertonic dextrose solution was given intravenously twice a day. After about six hours, the convulsions became milder and finally ceased; respiration became quieter, and the patient was able to take liquid nourishment. He remained apathetic and stuporous for the succeeding eight hours, but after this time rapidly became orientated and asserted that he felt well and would like to get up. He was discharged from the hospital on the fifth day, apparently entirely well.

CARDIOVASCULAR SYPHILIS IN GENERAL PRACTICE. C. F. COOMBS, Brit. M. J. **2**:893 (Nov. 29) 1930.

Coombs emphasizes the fact that aortitis, a distressing and fatal malady in from 10 to 20 per cent of all cases, is the inevitable lot of the patient in whom syphilis is inadequately treated in the early stages. He believes that there is good reason for hoping that the campaign against venereal disease, which has given to every one infected with syphilis an opportunity of early and thorough treatment, may succeed in its object and avert these disastrous sequels. One cannot, however, be confident of this, and it is therefore the duty of physicians to be ready for an increase in the incidence of cardiovascular syphilis in general practice during the next decade or two.

VASCULAR MECHANISM IN ACROCYANOSIS. T. LEWIS and E. M. LANDIS, Heart **15**:229 (Dec.) 1930.

Examination of the hands in a fully developed case of acrocyanosis has led Lewis and Landis to conclude that the essential disturbance of the cutaneous circulation is an obstruction in the cutaneous arterioles; the obstruction is not venous. The obstruction is not the result of structural change, but is due to increased tone of the arterioles at ordinary room temperatures. The vessels, though capable of expanding fully, are in a state of relative spasm. This spasm is not due to increased vasomotor tone; its cause is to be sought in the vessels themselves. The arteriolar spasm is the cause of the diminished blood flow in, and coldness of, the skin. Cyanosis results from the diminished blood flow and also in part from the increased content of blood of the skin. The decreased tone of the vessels that gives the skin its intense color is due in part to the diminished blood flow through them; it is probably brought about in part by continued low temperature.

MEDICAL TREATMENT OF ANTHRAX. C. G. BRENTNALL, Lancet **2**:1174 (Nov. 29) 1930.

Brentnall compares the combined surgical and serum treatment of cutaneous anthrax, and of medical treatment alone, and shows that recovery is quicker by the latter method. This comparison is made from cases that occurred in the same district, under much the same conditions of infection as regards site and severity. The treatment consisted of the injection of antianthrax serum and neoarsphenamine and other arsenical preparations.

TREATMENT OF ERYSIPELAS WITH VACCINES. W. T. BENSON, Lancet **2**:1286 (Dec. 13) 1930.

A study of 235 carefully controlled acute cases of erysipelas has led Benson to the conclusion that the administration of stock or autogenous streptococcal vaccines, or mixed staphylococcal and streptococcal vaccines in erysipelas does not (*a*) shorten the duration of the attack; (*b*) prevent extensive spread of the inflammatory process; (*c*) lessen the incidence of common complications such as abscesses and cellulitis; (*d*) diminish the occurrence of relapses; (*e*) prevent recurrences, or (*f*) have any appreciable effect in diminishing the mortality from the disease.

TOXICOLOGY OF THALLIUM. G. R. LYNCH and J. M. S. SCOVELL, Lancet **2**:1340 (Dec. 20) 1930.

Lynch and Scovell are of the opinion that thallium acetate should not be used as an ordinary routine treatment for ringworm of the scalp for the following reasons: 1. Thallium in itself is a highly toxic substance showing a marked similarity to lead, both in its chemistry and in its toxic symptoms, and the far-reaching effects of the poison are much greater than is generally supposed. 2. It has a definitely selective action on all forms of nervous tissue, and even in infinitesimal doses it causes slight degenerative changes in the brain cells of rats. It is therefore most unlikely to leave the human brain entirely unchanged, and it seems impossible to be certain that it does not hinder further development of the brain. 3. The margin between an epilating and a toxic dose is extremely small and allows for no idiosyncrasies, whereas with roentgen rays the dosage is very accurate, trouble is rare, and if a mishap occurs it is at least local. 4. Ringworm of the scalp is not in itself a fatal disease and, though often troublesome, can usually be cured by other means. It therefore does not seem justifiable to use such a powerful poison in an attempt to cure it a little more quickly. 5. It is quite easy to obtain thallium salts in a state of purity, and there is no especial reason why a solution which has been kept for some time should not be used. The authors do not believe that toxic phenomena were ever due to the use of an old solution.

SOAP TREATMENT OF WOUNDS AND ULCERATED SURFACES. M. RENAUD, Bull et mém. Soc. méd. d. hôp. de Paris **54**:1584 (Nov. 10) 1930.

Because of the favorable results obtained in recent years by the use of soaps and soap solutions as antiseptics, Renaud conducted a series of experiments to determine their value. Using solutions of sodium oleate, he sometimes washed ulcerated surfaces with a 2 per cent solution, sometimes covered them with compresses of the same solution and sometimes covered the tissues with a sort of ointment, obtained by the addition of electrolytes to concentrated solutions. The results were excellent. Not only did the solutions have a marked curative effect on necrotic and fetid tissues, but true cicatrizations were often observed. Especially noteworthy results were observed in the treatment of ulcerations of the genitalia. The author is convinced, therefore, that, because of their extreme fluidity as a result of which they reach and collect all the finest particles, and because of their harmless effect on the tissues, soap solutions are destined to become the most efficacious of antiseptics.

NEGATIVE EXPERIMENTAL OBSERVATIONS ON TAR CANCER. U. FABRIS, Clin. chir. **33**:1148 (Oct.) 1930.

Fabris, not having been able to produce tar cancer after numerous experiments on about 600 animals, holds that the prolonged irritating action of tar (coal tar, Norway tar) may prepare a terrain adapted to the development of blastomas in the sense of provoking an antiblastic dysfunctioning in the various

tissues of the organism. For the final causation of the cancer some parasitic agent must become associated, which constitutes for Roncali and his "school" the true specific element in the appearance of the blastoma.

EMBOLISM FROM INTRAMUSCULAR INJECTIONS OF BISMUTH IN TREATMENT OF SYPHILIS. L. A. CORDIVIOLA and A. J. GUIROY, Semana méd. **37**:1279 (Oct. 23) 1930.

Cordiviola and Guiroy call attention to the possibility of an arterial embolism after an intramuscular injection of bismuth (either soluble or insoluble salts of bismuth) in the treatment for syphilis. In order to avoid this danger the authors advise subaponeurotic injections. After the needle has been introduced, the entrance of blood should be expected, and a movement of slight aspiration should be made with the syringe before injecting its content, in the event that the needle is obstructed, thus preventing the flow of blood. The injections should be made at the internal part of the buttocks where the blood vessels are fewer than in some other parts. If arterial embolism is produced, it should be treated as soon as it is diagnosed. The symptoms produced by arterial embolism are spectacular. The authors report a case in a syphilitic patient, aged 20, who immediately after the eighth intramuscular injection of bismuth had a painful reaction followed by the development of a hard local inflammation, pain that radiated to the entire leg, and the appearance of dark red arborizations in the area in which the injection had been made; some of these arborizations ended in the formation of superficial scars. All symptoms proved to be caused by the presence of an arterial embolism. The authors explain the mechanism which, in their opinion, is involved in the production of arterial embolism, and they present photomicrographs of serial sections made after a biopsy.

COSMETICS: THEIR INJURIOUS EFFECTS. R. L. MAYER, Med. Klin. **26**:1619 (Oct. 31) 1930.

Mayer points out that it is generally believed that the mechanical factor in powdering and painting, namely, the clogging of the excretory ducts of the sweat glands, inhibits the normal secretory function of the skin and thus causes it to become flabby and grayish. It is probable that this factor has a certain influence, especially when the perspiration is profuse, as is frequently the case in actors; but whether this clogging of the pores is also of significance in the customary daily use has not been proved. However, injurious effects do result if the powders or paints contain poisonous ingredients, such as white lead. In some countries the use of white lead is prohibited. In other countries white lead has not been legally prohibited as yet, and in these countries the injurious effects of cosmetics are most common, not only on the skin but occasionally manifested as symptoms of severe poisoning like those noted in lead poisoning; in many instances the white lead in the cosmetics has been found to be the cause. In Japan, where women use powders containing mostly white lead, it has been noted that breast-fed infants frequently develop meningitis, and the lead-containing powders have been considered the cause of this. Efforts are now being made in many countries to prohibit the use of white lead in the preparation of cosmetics. But even if the cosmetics do not contain poisonous substances, local symptoms of irritation may develop. Some persons may have a hypersusceptibility toward certain ingredients, most frequently toward the dye or the scent. However, these cases are extremely rare. It is usually difficult to detect the offensive substance, because the perfumes used for scenting the powders sometimes contain from fifteen to twenty-five different substances. A person who is hypersensitive to a certain powder should either not use any powder or should try other brands. In cases of inflammation of the mucous membrane of the lips resulting from the use of a lip stick, it has been found that either eosin or rhodamine was the cause. In discussing hair dyes, the author points out that those of vegetable origin, especially henna, are harmless. However, the oxidation products of synthetically

produced amines have likewise been used for hair dyeing in recent years, and in some persons cause complications. These substances are used also for dyeing furs, and occasionally inflammations of the skin develop after contact with such furs. Metallic dyes are sometimes combined either with organic dyes or with henna, and the author thinks it advisable in order to prevent serious complications to test the dye first on a small portion of the hair. He also advises against bleaching the hair with hydrogen dioxide.

CURE OF ULCERS OF THE LEG BY OBLITERATION OF VARICOSE VEINS. L. ISAAK, München. med. Wchnschr. **77**:1539 (Sept. 5) 1930.

Isaak asserts that varicose ulcers of the leg are most successfully treated by obliteration of the varicose veins. This he attains by injecting 10 cc. of a hypertonic sugar solution. In order to insure good results it is essential that the section of the vein to be obliterated is as bloodless as possible. This is readily effected by the usual procedures resorted to, such as elevation of the leg, and forcing the blood backward. The author employed this technic in more than 100 cases. He gives detailed reports of 9 cases. Not all varicose ulcers yield equally well to this treatment. According to the etiology, the healing tendencies differ considerably. The crater-like ulcerations that are surrounded by a thickened and inflamed skin, and are the result of thrombophlebitis, heal slowly; likewise, the flat ulcers, surrounded by eczematous, erythematous, hypertrophic or hypotrophic skin, heal comparatively slowly. However, the frequently deep and extensive ulcers that are caused by embolic occlusion of the veins, but which are usually surrounded by healthy skin, heal rapidly. Refractory to treatment are those ulcerations that have existed for several decades and that encircle large parts of the leg. The complications of the varicose syndrome, such as the eczema and the ulcer itself, necessitate, of course, besides the obliteration of the varicose veins, also local therapeutic measures. The author describes bandages and their application. In the conclusion he points out that ulcerations and eczema may in many instances be prevented by early treatment in varicose veins. As a special advantage of his therapeutic method he considers the fact that most patients can be cured by ambulatory treatment. If contraindications are strictly observed, the treatment is without danger and the results are permanent. Relapses may be avoided by early treatment for newly developing varicose veins.

INFLUENCE OF THERAPEUTIC MEASURES ON OCCURRENCE OF TABES AND DEMENTIA PARALYTICA. S. FRANKL, München. med. Wchnschr. **77**:1879 (Oct. 31) 1930.

Frankl points out that tabes and dementia paralytica have been increasing during the last decades. However, it is not likely that arsphenamine is the cause of this, since the increased frequency of these conditions dates back to 1881, whereas arsphenamine came into general use only in 1915. Treatment with mercury has also been thought the cause, but trustworthy investigators have disproved this also. Factors that are significant in the etiology of tabes and dementia paralytica, besides insufficient antisyphilitic treatment, are a neuropathic heredity, worries, infectious diseases and traumas. It has also been reported that *Spirochaeta pallida,* when transmitted to different races, frequently causes tertiary syphilis in the new carrier, whereas in the old carrier this form of syphilis was not present. This has been noted in Europeans who acquired syphilis in Africa, in Mexico or in China. In order to determine whether therapeutic methods have an influence on the development of tabes and dementia paralytica, the author investigated the clinical histories of patients in a clinic for nervous diseases. On the basis of his observations he comes to the conclusion that among men the percentage of those with tabes and with dementia paralytica has remained about the same during the last ten years. Among women there appears to be a slight increase in dementia paralytica, but this is probably due to the fact that syphilis has likewise increased among women. Treatment with arsphenamine caused neither

an increase nor a decrease in so-called metasyphilis. It is possible to reduce tabes and dementia paralytica to a minimum by beginning antisyphilitic treatments early and by continuing them systematically during several years without consideration of negative seroreactions.

FREQUENCY OF DEMENTIA PARALYTICA IN HELSINGFORS. G. E. A. ROTHSTRÖM, Finska läk.-sällsk. handl. **72**:633 (Aug.) 1930.

Rothström says that comparison of the number of cases of dementia paralytica in men from 1919 to 1923 and from 1924 to 1928 shows an increase of about 100 per cent. The relation between the number of men and women with dementia paralytica was 3.7 to 1 in the first period and 5.8 to 1 in the second. He did not find evidence for the assumption that the nature and intensity of an antecedent antisyphilitic treatment affect the duration of the latent period or cause a shifting in either a positive or a negative direction. Thirty-two per cent of the cases now set in after the age of 46.

MALARIA TREATMENT FOR DEMENTIA PARALYTICA. I. OSTENFELD, Hospitalstid. **73**:971 (Oct. 9) 1930.

Of Ostenfeld's 100 patients treated only by malaria, with an observation period of up to seven years, about one half were influenced to a greater or less degree, 10 per cent with considerable benefit.

ERYTHEMA NODOSUM AS OCCASION FOR DISCOVERY OF TUBERCULOSIS IN INFECTIOUS STAGE. H. ERNBERG, Norsk mag. f. lægevidensk. **91**:1079 (Oct.) 1930.

Ernberg calls erythema nodosum, "a kind of autogenous tuberculin reaction of the organism," and says that in children, especially those in the first years of life, it is an indication for a more careful examination of the patient and for the possible establishment of open tuberculosis in the patient's environment. He illustrates this condition with five cases.

CASE OF INFANTILE TABES. C. LOOFT, Norsk mag. f. lægevidensk. **91**:1128 (Oct.) 1930.

Looft describes the definite picture of tabes dorsalis in a boy, aged 11½.

ALKALINITY OF BLOOD IN ECZEMA. B. S. BIKKENIN and N. N. YASNITSKY, Kazansky M. J. **26**:703 (July) 1930.

Bikkenin and Yasnitsky studied the p_H of the urine and of all the blood in fifty-six patients with eczema (twenty-seven acute cases and twenty-nine chronic cases). At the preliminary examination of the sympathetic nervous system, vagotonia was observed in fifteen patients, sympathicotonia in three patients, a mixed form in seventeen patients and a normal sympathetic nervous system in twenty-one patients. The determination of the p_H was made by the calorimetric method of Michaelis with a morning specimen of the blood and urine. No deviation from the normal was found in the urine, but the p_H of the blood was found to be from 0.1 to 0.5 above the average, with the maximum increase in the patients with vagotonia.

Society Transactions

NEW ENGLAND DERMATOLOGICAL SOCIETY

RUDOLPH JACOBY, M.D., *Secretary*

Regular Meeting, April 16, 1930

WALTER T. GARFIELD, M.D., *Chairman*

ACNITIS. Presented by DR. WILLIAM J. MACDONALD.

A. R. P., a white man, aged 48, a Rumanian chiropodist, complained of an eruption of the skin in conjunction with which asthenia, dyspepsia and constipation existed. The duration of the dermatosis was ten years. It was distributed over the forehead, the right lateral costal region and the nuchal region. The eruption on the forehead consisted of several small, depressed, atrophic areas, the size of a pea, which the patient stated had appeared gradually. On the body there were similar lesions which, however, were not depressed.

The Wassermann reaction was negative. The spinal fluid and sputum were normal and a roentgenogram of the lungs was negative for tuberculosis.

DISCUSSION

DR. W. P. BOARDMAN: The patient seems to be neurotic. When I saw him previously, he had many active lesions on the body. If the lesions are true acnitis, I think that crusted, somewhat nodular lesions would have been found. I believe that there is a nervous element which might account for the entire picture.

DR. E. L. OLIVER: I agree with Dr. Boardman. I do not think that the lesions are chronic enough to warrant the diagnosis of acnitis. It seems to me that they looked more like scars from chickenpox than anything else.

DR. W. T. GARFIELD: I asked the patient whether any pus came from the lesions. He said not; they developed as atrophic spots and remained so throughout their course.

DR. F. P. MCCARTHY: The patient is a floater; he has been in my office, and he has visited this clinic; he is a confirmed neurasthenic. He is a member of an associated profession, the chiropodists, and is keenly interested in his surface lesions. When he consulted me, he showed me some minor pigmented lesions on the face and did not discuss the scars at all. The scars are a new thought.

PIGMENTARY DISTURBANCE, VASOMOTOR DISTURBANCE AND CUTANEOUS ATROPHY. Presented by DR. J. L. GRUND.

A Jewish woman, aged 37, a housewife, had had a pruritic eruption on the body for several years. There were mottled areas of hyperpigmentation on the neck, chest and back, and many small, pinhead-sized, atrophic areas on the abdomen. The elbows and upper part of the forearms showed redness of vascular origin with fine capillary dilatation and poikiloderma-like changes. The skin was very dry and thin. The mottled pigmentation on the upper arms was sharply demarcated.

At the time of presentation, pigmentation was present on the abdomen, the chest and the back, but it was much more pronounced on the abdomen. The face and mouth were clear, but there were irregular areas of bluish-purple discolora-

tion on both legs. The pigmentation of the body had been present for fifteen years. The vasomotor instability of the legs showed in a mottled blue discoloration. The pigmentation was not raised; it was diffuse with no sharply circumscribed areas. The skin was very dry and thin. There were unquestionable vascular changes in the skin on the posterior aspect of the arms, most pronounced in the region of the elbows. There were small areas of atrophy on the abdomen. There was no ichthyosis. The patient's menstrual periods had always been of one day's duration with a very slight flow.

A biopsy specimen from the right side of the abdomen showed atrophic skin, and one from the right elbow showed atrophic skin with chronic inflammation.

Examination of the blood revealed: Wassermann reaction, negative; hemoglobin, from 70 to 75 per cent; polymorphonuclears, 65 per cent; eosinophils, 1 per cent; endothelials, 11 per cent; mast cells, 21 per cent, and plasma cells.

DISCUSSION

DR. J. H. SWARTZ: I venture a diagnosis of von Recklinghausen's disease. I thought that the case looked like one Dr. Wise reported. The patient has had the condition ever since she can remember. She is not bright mentally.

DR. W. P. BOARDMAN: The lesions are atrophic and, I thought, fairly symmetrical, especially around the knees. The vascular dilatation suggested poikiloderma vascularis atrophicans.

DR. J. L. GRUND: The pathologic report showed atrophy of the skin plus chronic inflammation, which is not similar to that of any stage of von Recklinghausen's disease. There is no indication that any one in the patient's family ever had it. The type of macules and the pigmentation that Wise described are lacking; in that disease usually the patient or some other member of the family will have fibromas. The entire dermatologic picture and history point to a disturbance, probably of the internal secretions or to a beginning poikiloderma atrophicans vasculare.

DR. E. L. OLIVER: I think that there is a bare possibility that the disease is leprosy; some of the atrophic areas are suggestive, and I think that a test for anesthesia might be in order.

DR. A. M. GREENWOOD: Does atrophy appear in this type of von Recklinghausen's disease?

DR. E. L. OLIVER: I have never seen in von Recklinghausen's disease spots of the size that the patient shows.

LUPUS VULGARIS. Presented by DR. F. P. MCCARTHY.

B. G., an Italian girl, aged 19, was one of five children; none of the others had had any illness. Since childhood she had had numerous complaints; she had had several discharging sinuses from the neck, which had been operated on during the past ten years, but had not recurred for the last three years. She had had a stiff neck for many years, as well as some stiffness in the right shoulder. At the time of presentation, she said that she ate well, slept well and felt well.

About two years before presentation, her nose became swollen, with an area on the right side of the nostril which gradually spread until it involved the lower half of the nose and a portion of the upper lip in relation to the ala nasi. The condition in the nose caused her no particular discomfort. She had had no treatment.

Examination showed that the patient was undeveloped and undernourished, with a marked limitation in the motion of the cervical spine and some ankylosis. The teeth were hypoplastic, especially the lower central and lateral incisors, with a marked formation of tartar on the lower right molars. The tonsils were not enlarged. There was multiple scarring of the right cheek and of the right side of the neck and to a less degree, also of the left side of the neck. These scars averaged from ½ to 1 inch (from 1.27 to 2.5 cm.) in length and

¼ inch (0.6 cm.) in width. There were no active sinuses. A few submental glands were palpable. The nose showed a large, brownish, hypertrophic, vascular lesion extending to and involving a portion of the upper lip. There was an irregular ulceration near the tip at the lower margin of the nasal lesions centrally located and another ulceration at the nasal labial fold. The lesion was somewhat symmetrical in shape and showed large pilosebaceous orifices. The results of the Wassermann test were negative. Biopsy confirmed the diagnosis of lupus vulgaris. Slides were shown.

DISCUSSION

DR. H. P. TOWLE: I should like to ask the presenter what he proposes to do in the way of treatment.

DR. F. P. MCCARTHY: I particularly brought this case in for an open discussion of the treatment. In the first place, the patient is not a graduate of institutions; she is one of the few patients with a definite condition of the skin who has reached a physician's office before reaching the hospital, although I understand that she was in the Massachusetts General Hospital for a few hours, but would not stay. I had a difficult time getting a minute piece of tissue for a biopsy. By way of treatment, I am recommending either carbon dioxide, radium or possibly surgical removal and electric coagulation — three definite suggestions.

The patient has an ankylosis of the cervical spine and multiple cervical scars from repeated incisions. She is unable to open her mouth very far, suggesting an ankylosis of the jaw. She has a relatively rapid pulse. She is 19 years old and weighs 70 + pounds (31.8 + Kg.). She is a study for an institution along the lines that have been suggested.

DR. H. P. TOWLE: Would you advise putting the patient in an institution or sending her to Arizona? I do not think that that type of patient is benefited by hospitalization.

DR. F. P. MCCARTHY: If the patient could be hospitalized temporarily for further investigation, it might be well. I think that our climatic conditions are just as beneficial in the treatment for tuberculosis as those of Arizona. If a patient gets well in the climate in which he is going to remain, it is much better.

DR. A. M. GREENWOOD: I have had experience with similar cases and have found that the patients have done very well when sent to Lakeville. Those in charge of Lakeville have taken a great interest in this condition, and there have been excellent results in several patients.

DR. E. L. OLIVER: I second Dr. Greenwood's statement. I think that the results in patients with lupus who have been treated at Lakeville have been astonishing. There was an article in one of the German magazines saying that lupus could be cured by diet — six meals a day. Although I could not see anything curative in the proposed diet, good results within a few days were claimed for it.

DR. J. L. GRUND: I think that it is worth while to administer injections of a gold compound in lupus vulgaris, although the results are not as significant as those obtained in lupus erythematosus.

DR. W. T. GARFIELD: My experience with cases of lupus vulgaris has been that treatment with a gold compound has increased the activity of the lesions.

DR. C. G. LANE: In a few selected cases of lupus vulgaris, I believe that filtered roentgen therapy is of distinct value. I do not think that it can be used in all cases, but in those that have not had previous treatment, in those that are quite sharply localized and in those that do not already have much scar tissue, I believe that treatment with filtered x-rays is worth considering. In the general variety of lupus I believe that the sun and the treatment given at Lakeville would be of the greatest importance, but possibly as an additional treatment, a short series of filtered x-rays, a trifle less than a skin unit — three or four treatments given at monthly intervals — would be worth considering.

A Case for Diagnosis (Erythema Multiforme?). Presented by Dr. W. T. Garfield.

W. N., a man, aged 67, an American, a janitor, for five weeks had had an itching rash that began on the arms and spread all over the body, but not to the face. He had used home remedies. The dermatosis, which was general except for the face, was a vesicular, crusted and excoriated eruption. The lesions on the legs and arms were confluent; those on the body were discrete, somewhat circular patches. There were also vesicular lesions in the mouth and the throat.

DISCUSSION

Dr. F. P. McCarthy: The rash is a dermatitis herpetiformis, with lesions in the mouth. The patient said that he had had three large lesions on the dorsum of the left hand. I think that either acute pemphigus or dermatitis herpetiformis should be seriously considered.

Dr. C. P. Fitzgerald: I thought that the eruption was generalized herpetiformis.

Dr. H. P. Towle: When the word pemphigus is mentioned it is like starting on a merry-go-round. Lesions can be differentiated on the patient that justify any one of the three diagnoses. My first opinion, like that of Dr. McCarthy, was dermatitis herpetiformis, but closer examination of the groups as they appeared on the abdomen, where I saw small pea-sized blebs surrounded by a ring of minute, exudative lesions, which are sometimes seen in erythema multiforme, suggested that disease. The duration of six weeks, although it does not quite bar out erythema multiforme, is long enough for recessions to begin to appear. There were hardly papules enough for dermatitis herpetiformis. The lesions in the mouth suggested pemphigus, although they do occur in erythema multiforme and dermatitis herpetiformis. The only answer to the question of diagnosis is that time will tell.

Dr. W. T. Garfield: These three diagnoses were discussed at the clinic when the patient made his first appearance. At that time he said that he had never had either large bullous lesions or vesicles; that influenced me more toward the diagnosis of erythema multiforme than toward that of pemphigus. However, it did look as though some of the lesions on the body had been bullous, but the patient stated that that was not the case, and that they were discrete vesicles in groups. His blood has not been examined, and if I remember correctly, he has never received any treatment.

Dr. E. L. Oliver: I have never seen a case of pemphigus with such an area of smaller lesions around the bullae. I think that that greatly favors dermatitis herpetiformis, and I think, with Dr. Towle, that if the eruption were erythema multiforme a recession of the lesions should appear. I think that these areas show evidence of scratching, which is against, but does not entirely rule out, erythema multiforme.

Dr. A. M. Greenwood: I think that it would be a good thing if some of the patient's blood could be sent to Dr. Pels at Baltimore.

Dermatitis Papillaris Capillitii. Presented by Dr. J. G. Downing.

M. F., a man, aged 57, an Irish laborer, for one year had had a swelling of the left side of the neck that was very itchy, covering an area 2 inches (5 cm.) square. This area was studded with many small nodules the size of a pea, which were more or less maroon, smooth and shiny, and in many cases were pierced by a hair. On pressure a small amount of blood serum could be expressed. The lesions were not tender, and were definitely localized. The patient had just entered the hospital, so it was impossible to give any laboratory observations.

DISCUSSION

DR. J. G. DOWNING: The lesions are suggestive of dermatitis papillaris capillitii. However, I think that it is impossible to rule out epithelioma without a biopsy, which will be done.

DR. E. L. OLIVER: I suggest the diagnosis of folliculitis.

A CASE FOR DIAGNOSIS (ERYTHEMA ELEVATUM DIUTINUM? ERYTHEMA MULTIFORME?). Presented by DR. B. APPEL.

S. S., an American schoolboy, aged 13, had had an eruption on the face, elbows and buttocks for one and one-half years. It had started in about October, 1928, as an eruption similar to the one present and did not clear until the next July. The following October, the condition recurred, but was apparently checked soon after by some white tablets. He remained free from the eruption for about three weeks, and then his lips swelled and stayed so for about five or six days. After the swelling of the lips subsided, the eruption presented had appeared and had been constant since then. The lesions itched and felt like pinpricks. The patient frequently became pale, and a queer feeling developed as though he were scared, making him want to go away by himself. His feet perspired profusely, and he got cold easily. The condition was always worse in winter. Goose-flesh developed easily, and he turned blue when he was cold or when swimming in cold water.

Over the face and about the eyes there was a conglomeration of slightly raised, sharply outlined, round, flat, purplish-red macules, a few of which were discrete. There was a similar conglomerate area over the right eyebrow extending about 1 inch (2.5 cm.) above and over to the interciliary area. Over each elbow there was a group of about ten or twelve similar, smaller, discrete, slightly raised lesions about the size of a split pea; a few were slightly scaly, and when scratched suggested a silvery sheen. Over the back of the left wrist was one small, dark red papule and a larger, round, flat, iris type of maculopapule about 2 cm. square; over the dorsa of many fingers of both hands, especially over the middle of the basal phalanges, were similar iris-like, round, dull red lesions, the borders of which were slightly but definitely raised; there was an occasional similar, smaller lesion about the paronychiae. Over the buccal mucosa near the lower molars on each side were round red areas with a small, white, shallow erosion in the center, and over the uvula there was a small, white erosion surrounded by edema and redness. During the past few days, a few new small keratotic lesions had developed on the palms.

DISCUSSION

DR. H. P. TOWLE: The case interested me greatly. I could not give it a definite name, which is perhaps not unusual for me, but I put it down as one of angioneurosis. The patient has livid extremities, and the soles and palms are cold. When he is exposed to a lower temperature, there is an immediate swelling of both hands and feet, of his face and of his lips, so the history relates. I do not know whether the swelling is due to cold weather or not. Associated with the swelling are the indefinite lesions. It was suggested that we call the condition lupus pernio, which is an indeterminate name and I think a misnomer. There is evidently psoriasis and a disturbance of the vasomotor system at times. That throws one back to the causes of these symptoms. I do not think that an accurate diagnosis can be arrived at without extensive laboratory investigations. Of course, the vasomotor symptoms go back to the vegetative system and that involves the endocrine glands. The patient is 13 years old, rather pasty and not in good physical condition. There is an infection known as livedo, simulating this picture, which is associated with tuberculosis. That should be thought of.

DR. J. H. SWARTZ: The lesions on the backs of the fingers look like lupus pernio, but some of those on the face and ears resemble lupus erythematosus. On close examination, there was no definite atrophy. I do not see why a combination of lupus erythematosus and pernio could not be found in this case.

DR. B. APPEL: I was interested in what Dr. Towle said. The boy has been a patient of Dr. Rowe at the Evans Memorial Hospital, and I shall be glad to give a report from the Evans Memorial Hospital on this case at the next meeting. In one or two of the lesions near the joints on the back, the center is somewhat depressed, and they appeared, from a descriptive sense only, something like granuloma annulare. I think that the most interesting phase of the whole picture is the fact that these lesions are associated only with cold weather. Last summer they entirely disappeared. As soon as the boy goes into water that is slightly cold he gets a scared feeling, which he says makes him feel as though he were shaking inside, the sort of thing a person feels when you give him a large dose of epinephrine.

GRANULOMA PYOGENICUM. Presented by DR. J. G. DOWNING.

J. C., a boy, aged 10 years, a Canadian, had a wart on the right side of his head three months before presentation, which was neither painful nor itchy. At the time of presentation, over the right mastoid was a pedunculated new growth the size of a small grape, maroon and showing on the surface some fine blood vessels. The posterior third was ulcerated. Although examination suggested a diagnosis of granuloma pyogenicum, the case was presented because of a recent experience in which a similar lesion treated as granuloma pyogenicum on its recurrence was removed and found to be a hemangio-endothelioblastoma.

A CASE FOR DIAGNOSIS (SCLERODERMA? LUPUS ERYTHEMATOSUS?). Presented by DR. B. APPEL.

L. M., a woman, aged 34, an American, married, had had an eruption on the face and scalp for eight months. About two months after she had had a permanent wave by the steam method, she noticed a dark streak on the right side of the forehead. This slowly became dark brown. At that time the scalp became itchy, with a decrease in the amount of dandruff which up to that time had been profuse. About four months before presentation she noticed a brown area just to the right of the right eye.

On presentation, the scalp showed a long linear lesion about 1 cm. wide running from the vertex to the anterior hair line; a smaller, short segment lay just posterior to this line. Running upward on the right side of the forehead above the outer angle of the brow was a linear group of small pigmented dots about the size of a match-head. Just external to the right eye was a chloasma-like patch about 2 by 3 cm.

DISCUSSION

DR. J. H. BLAISDELL: I am interested, from what I gleaned from Dr. Burns, in whether this lesion was produced by a burn which the patient received while getting a permanent wave. As far as the lesion on the temple of the forehead is concerned, it seems to me it was. She said that she used ten or twelve different remedies before she went to a doctor. In regard to the lesion on the scalp, to my mind the patient presents an atrophy and loss of hair and also a rather curious area of extreme tenderness over that region and along the forehead. She had had a permanent wave, which produces that type of lesion.

DR. F. A. CHACE: This case interested me because a short time ago a patient with lupus erythematosus came to me with lesions on the region of the left temple and below. She gave a history of having had the disease many years before, then a period during which it troubled her very little, and a recurrence a short time before consultation when she burned the skin on that area with a curling iron.

DR. J. H. BLAISDELL: Can the presenter tell us the relation of the permanent wave to the appearance of the lesion?

DR. B. APPEL: The patient had a permanent wave by the steam method, and two months later she noticed the first signs of this condition on the forehead

at the hair line, which has apparently no relation to the present lesion, the most distant portion of the long linear lesion that extends along the central portion of the scalp. Every time she has visited me she has talked about the relationship of the permanent wave to this condition, and I have tried, of course, to dissuade her from the fact that there is any relation, which I honestly believe. I do not think that the spots on the right side of her temple could have developed as late as two months afterward, when no part of the apparatus came in contact with the temple or with the area just external to the right eye over which the chloasma-like lesion has developed. Another peculiarly interesting factor is the structure of the lesion, a long, narrow, linear type running from about the middle of the forehead back to the vertex of the scalp. I think that it is lupus erythematosus, but I am not sure about its relationship to the permanent wave.

DR. H. P. TOWLE: I thoroughly disagree with the diagnosis of lupus erythematosus. We used to think of it as a slowly growing, low grade disease affecting the epidermal layer and causing scaling and that the process in time would affect the formation of connective tissue, causing atrophy. According to the history, the lesions developed in two months.

DR. B. APPEL: They developed two months after the wave.

DR. H. P. TOWLE: And they have existed eight months after. I think that Dr. Blaisdell has explained the condition very well. I could not see the linear lesion that was spoken of. The patient had an undoubted case of eczema of long duration preceding all this. I do not believe that the condition is lupus erythematosus.

DR. F. S. BURNS: Before I read the history, my opinion was that the case was probably one of lupus erythematosus, but a consideration of all the conditions, a conversation about it with Dr. Blaisdell and the knowledge of numerous injuries following the processes of permanent waving led me to consider carefully. It seems to me that one fails to find anything concretely characteristic of what we call lupus erythematosus, or what we should call lupus erythematosus, in these lesions, that is, anything definitely characteristic either of the atrophy or of the papulous follicles. I am inclined to agree definitely with Dr. Towle's interpretation, in conjunction with Dr. Blaisdell's, that the lesions are from injuries that may follow the process of the permanent wave. As to the extent of the time it has taken for them to develop, I do not know. It may be that a pre-existing seborrhea may readily have lent itself to such a low grade process as would result in the condition as it now exists.

SCLERODERMA. Presented by DR. W. P. BOARDMAN.

F. J. F., a man, aged 46, an American, a conductor, had been married for eighteen years. The eruption had begun as a white, hard patch on the upper part of the chest near the sternum and the right clavicle, which slowly increased in size; about one month later another lesion appeared near the first one. There had been no sensory disturbances. Gradually, the two lesions had increased in size, and about two months before presentation several small areas had started on the back of the neck and then scattered over the face. Recently, a gradually increasing, diffuse hardening had appeared on the left shoulder. The duration of the dermatosis was from six to eight months.

At the time of presentation, over the outer part of the chest near the clavicles were two irregular, sharply outlined, white, hard, shiny and slightly raised areas about 1½ by 3 inches (3.75 by 7.6 cm.), surrounded by a diffuse violaceous area which was most intense near these areas and faded out to normal skin about from 2 to 3 inches away. Similar but much smaller lesions, varying in size from that of a bean to that of a nickel, extended over each side of the neck, the back of the neck and the lower part of the face, with one near each outer canthus of the eye. There was a diffuse hardening of the tissues on the left shoulder.

The Kahn reaction of the blood was negative. The basal metabolic rate was +5. Urinalysis gave negative results.

DISCUSSION

DR. W. T. GARFIELD: The factor that struck me most in this case was the apparent keloidal formation of the areas of scleroderma.

DR. J. L. GRUND: I believe that it would be interesting in this case to carry out chemical examinations of the blood for calcium and sugar.

DR. W. P. BOARDMAN: I have not investigated the case thoroughly as yet, but a metabolism test has been done; I have nothing to give further than that. The patient has four teeth that must be treated. Whether the condition is toxic I cannot say. It is a case that must be studied before we can arrive at any conclusions.

MONILIA INFECTION. Presented by DR. A. M. GREENWOOD and DR. E. M. ROCKWOOD.

C. B., a man, aged 51, married, had had no previous disease of the skin. The present illness was of six or eight months' duration. He was a storekeeper and part of his business was frying clams. He took the clams in his hands, washed them, rolled them in cornmeal and then dropped them into hot fat. Outside of being underweight, which he had been for some time, he considered himself fairly well. There was no looseness of the bowels or digestive trouble.

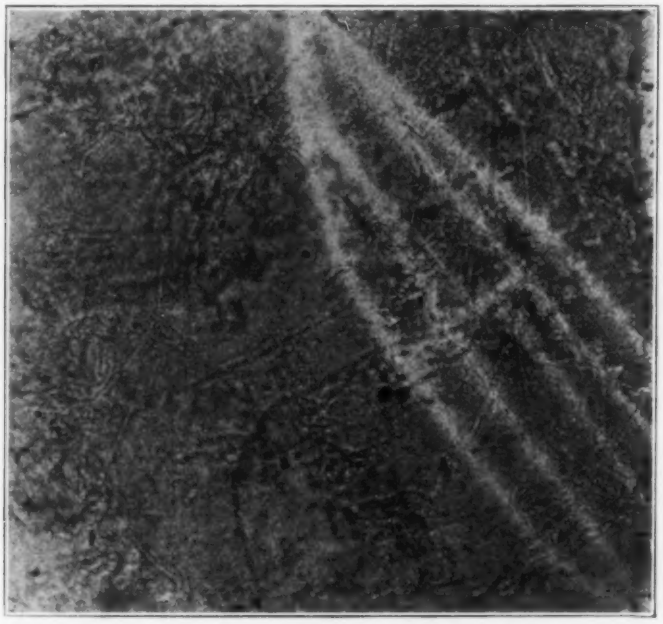

Fig. 1.—Photomicrograph, showing fine, delicate mycelium in extemporaneous preparations from the mouth and the skin.

He was first seen on Feb. 25, 1930. At that time the lesions of the skin were definitely bordered, red, dry, delicately scaling areas, involving the face, neck, axillae, groins, lower part of the abdomen, upper part of the thighs and around the knees. The nails were thick, yellow and opaque. The infection of the nails began at the proximal part of the nail at the root, probably as a paronychia. The palms were thick, yellow and almost verrucose in places. The tongue was covered with a white or grayish-white, shiny, moist coating. Under the tongue were flecks of this coating which looked like curds of milk. The corners of the

mouth and cheeks were affected. Microscopic observation of extemporaneous preparations from the mouth and the skin showed fine, delicate mycelium, as shown in figure 1. Cultures of the same specimens were shown in the Petri dish. Preparations from these showed only spores with budding, while an old

Fig. 2.—Delicate mycelium with budding.

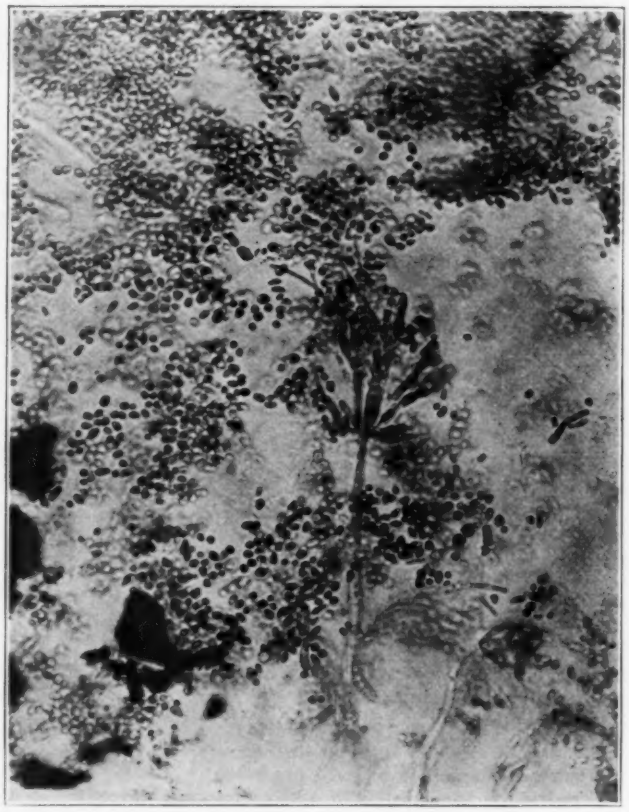

Fig. 3.—Photomicrograph, showing mycelium.

culture in hormone broth showed delicate mycelium with budding, as roughly shown in figure 2.

All of the cultures from the skin and the mouth were identical and probably belonged to the *Monilia* group. The culture in the flask with its photomicrograph (fig. 3) was obtained from two different nails on separate occasions. This culture belonged to the *Penicillium* family.

Treatment consisted in inhalations of ethyl iodide. For the first two weeks these were given daily until the patient showed an iodide eruption. Since that time he had had three inhalations a week. There had been no local treatment. Thus far, from February 25 to April 15, there had been no change in the appearance of the eruption.

DR. F. P. MCCARTHY: The tongue particularly shows pathologic changes as compared with the lesions elsewhere in the oral mucous membrane. The papillae on the left half of the tongue are about one half the length of those on the right side. On pressure and on scraping, an enormous amount of brownish débris and exudate is obtained. The right half of the tongue shows a definite hairy type of lesion and suggests the hairy tongue as described by Weidman. In his cases he was able to demonstrate the same *Streptothrix* organism in the lesions of the skin and the tongue. He was able to reproduce the lesions of the skin but not those of the tongue.

DR. E. M. ROCKWOOD: The *Penicillium* we found on cultures from different nails on two occasions is not the ordinary type; it is a white type. I do not yet know just what it is, but I am sure that it belongs in this class. The cultures from the skin and the mouth were soft, showing an extemporaneous, exquisitely fine, delicate membrane. The mouth was covered with it and showed practically nothing else.

CHLOASMA. Presented by DR. W. J. MACDONALD.

M. V. B., a woman, aged 39, a Canadian worker in leather, had noticed an unusual purplish discoloration that appeared on the cheeks, accompanied by a moderate degree of itching three weeks prior to consultation on March 1, 1930. The skin was rough and the mucous membrane of the mouth showed dark pigmentation. She had been using a cream called "Three Flowers" for several years and suddenly changed to a new brand of rouge (Chavai). She had been applying drops to the nose for two or three years, which, however, do not contain silver nitrate. A general examination made by Dr. Pratt gave negative results. "Three Flowers" rouge was reported by the American Medical Association as "comparatively harmless," and "Chavai Rouge" was reported by the Massachusetts Institute of Technology as "Nothing abnormal present."

The eruption, which covered the face and buccal mucous membrane, was characterized by an unusual dark color, a moderate degree of itching and a sudden appearance. It tended to be most exaggerated over the malar bones and extended up to the lower eyelids.

Urinalysis gave negative results.

The patient was treated with quartz light, but the results were inconclusive.

DISCUSSION

DR. H. P. TOWLE: This case reminded me of a series of cases reported from the Mayo Clinic. In one series there were three and in another six or eight cases. The offending agent was a face powder that contained mercury. I wondered if the rouge could by any possibility have a similar base.

DR. W. J. MACDONALD: I think that the report from the Massachusetts Institute of Technology would tend to disprove that. The report was that Chavai rouge was harmless to the skin. I presented the case because I wished advice on the treatment.

A CASE FOR DIAGNOSIS. Presented by DR. A. G. ISRAELIAN.

Mary C., aged 25, an Irish American, eight months before presentation had noticed a slight itchiness and shining of the skin of the upper part of the chest, which left atrophied areas. Lately, the condition had been spreading.

DISCUSSION

DR. W. T. GARFIELD: The lesions on the breast and the head, the fine, scaly, brownish areas that showed more or less crinkling when the skin was put on tension, looked something like tinea. I did not see any atrophy, but it is mentioned in the history.

DR. H. P. TOWLE: I suggest a diagnosis of parapsoriasis.

DR. W. J. MACDONALD: I suggest a diagnosis of tinea versicolor.

DR. W. P. BOARDMAN: The condition might be atrophic lichen planus.

DR. W. T. GARFIELD: If the eruption had appeared on the face, I should be inclined to call it seborrheic dermatitis.

TERTIARY SYPHILIS. Presented by DR. J. G. DOWNING.

H. K., a white woman, aged 30, had a swelling of the little finger of the right hand. A few days after Christmas, 1929, the patient noticed a small, raised, pinkish area on the knuckle of the little finger of the right hand which she thought was a boil. It was painless, but it increased in size. The day after New Year her local physician lanced the lesion, but only blood came. It continued to increase in size and involved the whole finger. About the middle of January it was large, red and swollen. Five weeks before presentation she noticed a similar lesion on her right elbow. It began as did the lesion on her finger and increased rapidly in size. About two weeks later she noticed a similar lesion on her left elbow. None of these lesions was painful. The patient was admitted to the surgical service of the Boston City Hospital where a diagnosis of sarcoma was made. A biopsy was done and a Wassermann test made. The lesion that had been biopsied rapidly broke down, and the patient was discharged to the outpatient department of the Skin Clinic.

The patient had never before been admitted to a hospital, nor had she been operated on. She had always been well and strong, and had never had a genital rash or sore. Her husband was living and well. She had had one miscarriage and her one child was living and well at 4 years of age. Her mother died of pneumonia at the age of 41; her father had died of carcinoma of the stomach at 62.

Examination showed the patient to be well developed and nourished. The head, eyes, ears, nose and mouth were normal. There were normal resonance and no râles in the lungs, and the heart was of normal size, with no murmurs. The abdomen was obese, but did not show spasms or tenderness; there was a question of a mass in the lower quadrant of the abdomen. The uterus was pregnant. The extremities were normal.

There was a bluish-red, spindle-shaped swelling of the entire fifth finger of the right hand, but no fluctuation or tenderness. On the outer side of the right forearm was a lesion elevated about ¼ inch (0.6 cm.), 2 inches (5 cm.) in diameter, reddish-brown, definitely infiltrated and smooth, having no ulceration, crusting or scaling. On the corresponding area of the left forearm was an ulceration of the same size, round, sharply punched out and with a very narrow, dull red, slightly indurated border, the floor of which was covered with a more or less dirty yellowish slough.

The biopsy reported was suggestive of syphilis. The Wassermann and Kahn reactions were positive.

DISCUSSION

DR. W. P. COUES: This case is extremely interesting from two or three points of view. In the first place, I do not think that the bones show lesions of syphilitic disease. In the roentgenogram the only pathologic change shown was a slight softening at the end of the second phalanx; the end phalanx seemed to be ankylosed, so one could not say that it was a syphilitic lesion of the bone. In the second place, when I looked at the right little finger without seeing the other lesions, I thought of two cases of Kaposi's disease. The left elbow showed an atrophic, punched out, round ulceration, the interesting point of which was that

biopsy had been done. Apparently the lesion, which had been very small, began to enlarge after the biopsy, showing the effect of trauma on the surface.

DR. W. P. BOARDMAN: What impressed me was the symmetry of the lesions on the elbows. They must be gummatous lesions, and I do not recall ever having seen such absolute symmetry in tertiary syphilis. The granulomatous lesion looked very much like granuloma sometimes seen after the use of iodide and bromide. Of course, the effect of treatment with iodide has already been remarkable. In size, the granulomatous lesion has diminished one half, and that on the finger more than half. There is now no question about the diagnosis.

KERATODERMA BLENNORRHAGICA. Presented by DR. J. G. DOWNING.

W. K., a man, aged 41, a Lithuanian butcher, had complained of soreness of the feet for eight weeks. Ten weeks before presentation he had noticed a discharge from the penis with some burning and frequency. A week later, after lifting a heavy load, he suddenly suffered a sharp pain in his right hip which extended down the right thigh along the posterior and medial aspects. This pain was so severe and constant that it required his admission to the Boston City Hospital. At the time of admission to the fifth surgical service eight weeks prior to presentation, the following diagnosis was made: bronchial asthma, acute urethritis and arthritis of the right hip. A smear of the urethral discharge showed gram-positive and extracellular diplococci. Roentgenograms of the spine, pelvis and right knee were negative. A roentgenogram of the chest denoted "chronic bronchitis." The patient ran a slightly septic temperature during his two months in the hospital. He was treated with anterior washes, salicylates and intravenous doses of oxalates. The swelling with probable fluid in both knees subsided about two weeks before presentation, and the pain in the hip had been largely relieved. Three weeks before presentation, large blebs containing small amounts of bloody serum were noticed on both soles. These were treated with potassium permanganate packs. The lesions had continued to enlarge, with secondary infection and marked keratosis. Chloride packs were used for a while and later only dry sterile dressings. The feet had been extremely painful.

The patient was transferred from the fifth surgical to the skin service on March 27, 1930, with a diagnosis of acute urethritis and acute arthritis.

For several years he had had a chronic cough with some whitish sputum. Two years before presentation he had had a tonsillectomy and adenoidectomy. One year later he entered the Boston City Hospital complaining of pains in the back and in the right hip, knee and leg, of three months' duration. He had some lesions on the skin of the leg which were described as tuberculids. After two weeks he was discharged with the diagnosis of infectious arthritis, early hypertrophic arthritis and tuberculid of the skin.

At the time of presentation, there were large, irregular, keratotic excrescences on the soles of the feet and involving both the toes and the heels, which revealed a certain amount of secondary infection in the subcutaneous tissues. The whole cutaneous layer seemed cornified and apparently showed involvement down to the subcutaneous layer. These hypertrophic lesions were scattered and irregular in size and thickness and gave the appearance of being considerably dried by the effect of some antiseptic. On the palms were a few small areas of hyperkeratosis, all under 1 cm. in diameter. On the back along the spine was a papular erythematous rash which was discrete in the thoracic region, and coalescent with dry, whitish crusting and scaling in the lumbar and sacral regions. The hair on the scalp was very dirty, swarming with pediculi and loaded with nits. The tongue was coated; dental caries and pyorrhea were present; the tonsils had been removed, and the pharynx was infected. The anterior and posterior cervical suboccipital axillary and inguinal glands showed adenopathy. There was slight tenderness over the right sacro-iliac joint. The chest was slightly barrel-shaped. There was a slight systolic murmur at the apex of the heart; otherwise, it was normal. The breath sounds were slightly coarse with prolonged expiration and occasional

sibilant and sonorous râles. There was very slight fulness and tenderness about both knee joints and lesions of the skin as described. The prostate was slightly enlarged and somewhat soft, but it was not tender.

The diagnostic impression was: gonorrheal prostatitis, keratoderma blennorrhagica, chronic bronchitis, dermatitis venenata (of the back) and pediculosis capitis.

DR. W. T. GARFIELD: I only remember seeing one other such case.

DR. H. P. TOWLE: It seems to me that there is no question about the Neisser organism being present. If such is the case, it seems to me that the lesions, the raw fingers and the keratoderma can be explained more simply. I think that they might be classified as mycotic, for raw lesions and vesicles appear on the sides of the fingers in that condition and there is a double dermatitis with rupturing vesicles in this case. You can call it symbiosis, if you like.

PSORIASIFORM SYPHILID. Presented by DR. J. G. DOWNING.

G. J., a man, aged 26, a Canadian, had had a primary lesion on the penis four months before presentation. The lesions on the body commenced two months before presentation. Later they appeared on the legs, arms, back and face. There were psoriasiform lesions over the body, mucous patches on the tongue, healed primary lesion on the penis and syphilitic laryngitis.

DISCUSSION

DR. E. L. OLIVER: I was interested in this case because we have a similar one in the ward at the Massachusetts General Hospital. I could not bring the patient to the meeting because he was too uncomfortable. Recovery commenced after the second dose of arsphenamine. Then, however, psoriasiform lesions that looked like those in the present case began to form and a small area that was like lupus verrucosus and that would ulcerate developed; he now has ulcers the size of a quarter. He still has some of these psoriasiform areas. I think that the condition is a malignant type of syphilis that has not responded to neoarsphenamine. He is now receiving potassium idodide and bismuth.

PEMPHIGUS. Presented by DR. A. W. CHEEVER.

A man, a sheet iron worker, had had a weeping eczema fifteen years before presentation which lasted for two months. Other than this the patient had had no disease of the skin and had always been in good health. During the winter of 1930 he was subject to headaches, occasional dizziness and shortness of breath. He slept fairly well, and his appetite was good. He had had pneumonia eight years before presentation. He had been employed "all his life" by the New Haven Railroad as a sheet iron worker and tin smith. He was on pension.

The present condition had started three weeks before presentation on the left wrist, and from there it had spread to all parts of the body. The patient said that the itching had been unbearable.

Two small epitheliomas were present on the right eyelid. The skin on the entire body was red. There was a fine macular eruption with many excoriations. Over the buttocks and on the upper part of the legs the skin was a brilliant red, but the popliteal spaces showed a purplish discoloration. Scattered on the forearms were large bullae arising from the clear skin. These bullae also appeared on the legs and contained yellowish turbid fluid. There were no lesions in the mouth. Over the crest of the right ileum was a nodule the size of a grape, and here and there on the skin were keratoses. There was considerable edema of the legs and hands. The patient was advised to enter the hospital.

DISCUSSION

DR. W. P. BOARDMAN: The lesion on the side of the body was not pemphigus; it was a dermatitis.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILOLOGY

WALTER JAMES HIGHMAN, M.D., *Chairman*

A. BENSON CANNON, M.D., *Secretary*

Nov. 4, 1930

A CASE FOR DIAGNOSIS (LUPUS ERYTHEMATOSUS?). Presented by DR. LOUIS TULIPAN.

M. Mc., a colored woman, aged 32, had had an eruption for five years. For the first three years, itching and scaling of the scalp were the only difficulties. This had been followed by crusting. Removal of the crust left open wounds which healed slowly. Loss of hair set in about the time the crusting of the lesion had appeared. Examination showed extensive areas on the scalp denuded of hair, atrophic, oozing and ulcerated in spots, the whole thoroughly covered with mercurochrome-220 soluble. The Wassermann reaction on Oct. 29, 1930, was negative.

DISCUSSION

DR. FRED WISE: The lesions in the scalp suggest, of course, various diagnoses, one of which is lupus erythematosus that has been irritated and ulcerated; another is pseudopelade of Brocq or a trophic folliculitis. I think that it is difficult to come to a decision regarding the actual diagnosis without further study and microscopic examination.

DR. FRANK C. COMBES: I agree with what Dr. Wise has suggested as the two possibilities in this case. However, I would like to suggest that these patches may be artificial in origin, that is, neurotic excoriations. This case suggested to me one reported this summer (*Brit. J. Dermat.* **42**:313 [July] 1930), in which practically one half of the scalp had been denuded down to the periosteum, solely as the result of self-mutilation.

DR. WALTER JAMES HIGHMAN: It is difficult to realize that pseudopelade of Brocq can form ulcers. I think ecthyma should be considered as one of the possible diagnoses in this patient.

DR. LOUIS TULIPAN: We considered both diagnoses stated by Dr. Wise. We did not know which one to decide on, but favored lupus erythematosus.

DR. PAUL GROSS: I saw this patient two months ago in the clinic and at that time the lesions were covered with heavy crusts that were too extensive for neurotic excoriations and rather suggested a secondary impetigo. I am inclined to agree with Dr. Wise's diagnosis of pseudopelade of Brocq.

PARAPSORIASIS VARIOLIFORMIS. Presented by DR. FRED WISE.

I. M., a boy, aged 8, came to the New York Post-Graduate Hospital on Oct. 28, 1930, with an eruption of four months' duration. The eruption involved the trunk, extremities and genitals, and consisted of numerous erythematous, scaly lesions. The earlier lesions were pigmented rather than erythematous. The lesions presented various stages of evolution and involution, but no true vesicle formations.

DISCUSSION

DR. PAUL GROSS: I feel entitled to discuss this case as I presented the first case of parapsoriasis varioliformis before this section. In my publication, which is to appear soon, I mentioned three types of parapsoriasis varioliformis: (1) that with acute onset and limited duration; (2) that with acute onset changing to a chronic, more or less typical parapsoriasis, and (3) typical cases of parapsoriasis

guttata in which a few varioliform lesions occasionally develop. Such is the case in Dr. Wise's patient who presents, besides typical parapsoriasis guttata, several varioliform efflorescences. I do not believe that there is any doubt about the presence of parapsoriasis varioliformis. Further details can be found in the publications of Dr. Wise, who was the first one to call attention to this disease in this country.

There is another patient presented here tonight who has a typical case of pityriasis lichenoides et varioliformis. I refer to the case presented by Dr. Sharlit as tuberculids following a tuberculin test.

DR. SIGMUND POLLITZER: I cannot help wondering why this kind of case, which undoubtedly is a distinct entity, should be grouped with parapsoriasis. The most characteristic feature of the parapsoriasis group, including the lichenoid, the guttate and the disseminate, is its complete indolence, its completely negative qualities; the lesions do not change. Here we have a condition in which there is a decidedly acute process going on, resulting in inflammation and necrosis. It seems to me that these features alone are so distinct that we should certainly separate this case from the group of parapsoriasis. This case no doubt belongs in the group described as parapsoriasis varioliformis, but I believe that name is badly chosen. I do not believe that this disease belongs in the parapsoriasis group.

DR. HERMANN FEIT: Were there ever any varioliform lesions in this patient? If not, parapsoriasis atrophicans (Kreibich) has to be considered. I do not know how the diagnosis parapsoriasis varioliformis can be maintained, unless vesicles have been present.

DR. FRED WISE: The histopathologic examinations reported in more than fifty cases of pityriasis lichenoides et varioliformis acuta (Habermann) invariably demonstrated the microscopic changes which occur in Juliusberg's type of parapsoriasis.

URTICARIA PIGMENTOSA OR PIGMENTED URTICARIA? Presented by E. W. ABRAMOWITZ.

B. B., a girl, aged 6, born in the United States, first came to the clinic of the New York Post-Graduate Hospital on Nov. 3, 1930. The mother stated that the patient had an eruption in August, which was described as urticarial in type. On examination, over the entire body, except the face, numerous, discrete, dark bluish pigmentary macular lesions were found, some of them becoming confluent and forming large patches. Rubbing the affected skin brought about an erythema but no urtication.

DISCUSSION

DR. FRED WISE: I think that the diagnosis is urticaria pigmentosa. The fact that we cannot obtain artificial urticarial wheals by rubbing does not always eliminate a diagnosis of urticaria pigmentosa. I think that the diagnosis of urticaria pigmentosa is justified on account of the color and distribution of the pigmented spots. In urticaria with pigmentation one almost invariably sees lesions in various stages of development. That symptom is absent in this case.

DR. PAUL GROSS: I am inclined to accept the diagnosis of urticaria with pigmentation, meaning that an attack of urticaria had disappeared leaving pigmentation. The histologic examination should bring out whether the color is due to hemosiderin or real pigment. We do occasionally see cases of urticaria with hemorrhagic lesions which are followed by a similar pigmentation. The only feature in this case favoring urticaria pigmentosa is the regular distribution.

DR. ISADORE ROSEN: I agree with Dr. Gross that this patient has been suffering from pigmentation following urticaria. The lesions in urticaria pigmentosa are much smaller, the color is a lighter brown with a tinge of yellow and urticarial lesions are present, especially when the skin is irritated. This patient gave a distinct history of having had an attack of urticaria some two months previously followed by pigmentation at the sites of the lesions.

DR. CHARLES WOLF: The important point is the generalized tanning of the skin. The patient might have been exposed to the sun's rays after she had had an attack of urticaria. This might explain the generalized tanning and intensification of pigmentation at the sites of the urticarial lesions. If the lesions disappear spontaneously after several months, the presumption is that the case was urticaria followed by pigmentation.

DR. JOHN FRANK FRASER: I did not see the patient. Dr. Rosen said the pigmentation followed an attack of acute urticaria. That fact would not militate against a diagnosis of urticaria pigmentosa. Dr. Abramowitz should have a biopsy performed.

DR. E. W. ABRAMOWITZ: I am neutral between the diagnosis of pigmentation following urticaria and that of urticaria pigmentosa, as I believe the nomenclature is at fault in describing the clinical lesions in either case. As is well known, urticaria pigmentosa is not an urticaria, but is characterized by the presence of mast cells, histologically. Clinically, there are lesions that may be xanthous, pigmentary or of erythematous appearance. Frazer has shown that the absence of mast cells in such lesions does not necessarily exclude the diagnosis of urticaria pigmentosa. I have never seen a case of an ordinary urticaria followed by pigmentation. It must be very rare. The description of such cases in the literature is not clear. In the patient presented tonight it is difficult to conceive that such a profuse macular pigmentation was the site of previous urticarial lesions. A biopsy will be taken, however, to determine the presence of mast cells.

I do not see any connection between the pigmentary lesions of this child and exposure to the sun.

LICHENOID SCLERODERMA. Presented by DR. FRED WISE.

This case was previously presented before the New York Dermatological Society, Oct. 28, 1930.

DISCUSSION

DR. JOSEPH J. ELLER: I believe that this lesion belongs to the class of nevoid diseases. This is a peculiar type of nevus. I hope that the observations will be reported after a microscopic study of the section has been made.

DR. JOHN FRANK FRASER: The diagnosis will have to be decided with the aid of the microscope. To make it a scleroderma, we should have a histologic picture of scleroderma. From the clinical signs, I fail to see any evidence of scleroderma.

DR. SIGMUND POLLITZER: My impression of this case is that it is a nevus. I saw the diagnosis proposed and looked for evidence of atrophy but did not see any. I think that the lesion is an extremely superficial nevus, probably involving the orifices of the pilosebaceous follicles.

DR. RAY H. RULISON: I thought that it was in the nature of a nevus.

DR. FRED WISE: This is a lesion of which, unfortunately, a definite diagnosis will not be made, if it depends on the histology, because the woman refuses a biopsy. Biopsy will undoubtedly leave an unsightly scar on the back. The diagnosis of lichenoid scleroderma was made because she has lichenoid papules, umbilicated, with prominent orifices in the sebaceous glands. Lichenoid scleroderma has been described by Ormsby, clinically and histologically; the clinical description was much like this case. It may be some form of nevus; there is no doubt of the justification of such a diagnosis. The lichenoid lesions, circumscription and lack of symptoms make the diagnosis of lichenoid scleroderma a probable one.

MULTIPLE BASAL CELL EPITHELIOMA. Presented by DR. L. I. CHARGIN

A man, aged 69, a tailor, had a lesion removed from the right side of his nose about twelve years prior to presentation. This did not recur. During the past several years he developed a number of similar lesions on the body, mostly on the

trunk. They began as small "spots" which slowly grew larger. At the time of presentation he showed a lesion the size of a five-cent piece in the suprapubic region. This lesion was irregularly round, somewhat ulcerated in the middle, with some crust formation and a raised and rolled border. Over the pectoral fold on the right side there were two similar smaller lesions but they were not ulcerated. Over the right lumbar region there was a smaller bean-sized lesion with bluish center and brownish, markedly elevated border. In the left anterior axillary line at about the level of the ninth rib was a pea-sized lesion and over the left side of the nose there was a much smaller lesion.

The scar in the midportion of the chest was the site of a former large lesion which had been removed for histologic study and which had been reported as a basal cell epithelioma.

DISCUSSION

DR. JOSEPH J. ELLER: Clinically, it would be impossible to differentiate between basal cell epithelioma and Bowman's type of intra-epidermoid carcinoma. The only way we can classify it is by studying the section microscopically. I agree with Dr. Chargin's diagnosis.

DR. FRANK C. COMBES: Regarding treatment, does Dr. Wise think radium and x-rays would have an equally beneficial effect on this particular type of basal cell epithelioma, as in the ordinary type of Krompecher's epithelioma?

DR. PAUL GROSS: The lesion in the suprapubic region is of especial interest, although the case fits perfectly into the class of superficial basal epithelioma as described by Graham Little and recently by Dr. Wise. This lesion could be one of the mixed basal cell squamous type. In Dr. Fordyce's case, which he described as Paget's disease of the skin, a large fungating lesion developed, and other cases with such development are described in the literature; therefore, we cannot consider this type of epithelioma entirely harmless. A radical excision of the one tumor is advisable for therapeutic and diagnostic reasons.

DR. SIGMUND POLLITZER: I think that the question of the particular type of epithelioma we are dealing with here is of interest, but I feel more strongly that the question of relieving the patient of the possibility of any further trouble is of greater importance. We can combine these two interests by cutting out the lesions which, fortunately, are small, and favorably located. A simple operation will cure the man and enable us to determine just what type of epithelioma he has.

DR. WALTER JAMES HIGHMAN: It is perfectly sensible to cut these lesions out or destroy them in any other way, but let us not paint a terrific picture as to the future of a young man of 69. By the time these lesions become sufficiently malignant to menace his life, other considerations less academic will have played their part.

DR. LOUIS I. CHARGIN: I think that the chairman has answered Dr. Gross adequately. These lesions can be removed in one of many ways: 1. The area may be thoroughly scraped, and painted with acid nitrate of mercury or frozen with carbon dioxide snow; radium or x-rays may be used. 2. Excision may be done. Personally, I have a preference for the first method when the lesions are located on the face. In this particular instance there is no objection to removal by surgical measure.

TUBERCULIDS FOLLOWING INJECTION OF TUBERCULIN. Presented by DR. HERMAN SHARLIT.

M. W., a white boy, aged 14 years, on Oct. 20, 1930, received 20 mg. of tuberculin as a test. This was followed in five days by the eruption for which he was presented. He then showed a generalized eruption of papules varying in size from that of a pinhead to that of a pea and papulovesicles with some excoriation of the lesions. Some of the lesions were surrounded by a corona of intense congestion. Itching of the lesions had been slight.

DISCUSSION

DR. MAX SCHEER: This patient presented some lichen planus lesions on the flexor surfaces of the left forearm. Although he says he has a habit of biting his cheeks, the eruption he has there cannot be accounted for by this habit. In the right cheek there is a whitish circinate eruption, in a shape which could not be produced by biting. It looks like circinate lichen planus. On the left cheek there are punctate lesions, in all probability of the same nature. I suggest a diagnosis of lichen planus with the possibility of the skin lesions being of the vesicular type of lichen planus.

DR. FRED WISE: I did not look into the mouth. This is the case to which Dr. Gross referred when he discussed pityriasis lichenoides. I think that this is a typical example of pityriasis lichenoides et varioliformis acuta. This case presents what has been described as an acute eruption of parapsoriasis. The multiformity of the lesions, their distribution and history, the absence of itching, and the general appearance of the lesions, together with the vesicular lesions, that have become excoriated and that are varicelliform in type, especially on the abdomen, form, when taken as a whole, a typical picture of parapsoriasis varioliformis. I am fairly certain that if a biopsy were taken from the nonvesicular lesion the changes of parapsoriasis would be apparent.

DR. PAUL GROSS: I examined the lesions in the mouth carefully and, on being questioned, the boy confessed that he had a habit of biting his cheeks. The roughness of the lesions confirms an opinion of traumatic origin and is against a diagnosis of lichen planus. Lesions of the mucous membrane are rare in parapsoriasis varioliformis and are vesicular and hemorrhagic.

The small pinhead-sized lesions fit very well into the picture of pityriasis lichenoides et varioliformis. These lesions develop rapidly into either pink, scaly, flat papules or the varioliform and hemorrhagic efflorescences.

In discussing again the existence of parapsoriasis varioliformis, there is another feature that is very convincing and that is the histology. There is nothing more astonishing than to compare a typical parapsoriasis lesion and an atypical varioliform lesion. You will find all of the features reduplicated in the necrotic lesions, but in excess. The usual leukocytic invasion of the epidermis is so extensive that it leads to destruction. The parakeratotic scutulum, as described by Pincus, is present. Another point in favor is the presence of leukoderma in some of the cases of parapsoriasis varioliformis. It is a secondary leukoderma as seen only in syphilis, psoriasis and parapsoriasis. From these clinical and histologic observations, we can reach no other conclusion than the one maintained by the European dermatologists, Dr. Wise and myself. It is peculiar that up to March of this year no case of parapsoriasis varioliformis had been presented and that we now see a large number in proportion to the rarity of the disease. I am sure that the condition would have been recognized if seen. But the same thing happened after the first description of Mucha in Vienna, after Habermann's presentation in Germany, after the publication of Gray's cases in England, and so it was in Poland, Japan and France.

In regard to the tuberculin reaction, I would be interested in the result in this case. Many cases of parapsoriasis varioliformis give a positive tuberculin test. In the first case of my series, the intradermal test was positive, but the biologic test of Besseau was negative, pointing to the absence of an active tuberculous lesion.

DR. EDWARD R. MALONEY: I want to agree with what Dr. Pollitzer has said about this case. I failed to see any clinical evidence of parapsoriasis and do not see why the term parapsoriasis should be used unless there are some definite lesions of the disease present. To me, this case presents many of the features of ordinary tuberculid. In addition, I do not see why we should deliberately disregard the fact that he received an injection of tuberculin and that the eruption came on a few days later. In this case, we have an acute eruption following the injection of a substance that we know can produce skin lesions, and I do not see

the necessity for trying to make a diagnosis of some unusual disease when a more simple explanation is at hand.

DR. HERMANN FEIT: Lichenoid eruptions after the administration of trichophytin are not so rare. I have a woman under my care now who reacted in that manner after injections of trichophytin which were given for diagnostic purposes. A tuberculin reaction may be analogous. Dr. Peck has observed this type of reaction after the use of tuberculin.

DR. JOSEPH J. ELLER: I agree with those who believe that this is some form of reaction due to the use of tuberculin; first, because of the history of the lesion appearing after the tuberculin test and second, because the lesions started as inflammatory papules and later developed central softening and necrosis, i. e., the picture of a papulonecrotic tuberculid. There have been reported similar reactions as a result of rubbing tuberculin ointment into the skin of patients suffering from visceral tuberculosis. I think, therefore, that a diagnosis of visceral tuberculosis should be ruled out in this case.

DR. ISADORE ROSEN: I agree with the diagnosis as presented and cannot understand how a diagnosis of pityriasis lichenoides et varioliformis can be entertained, for the reason that the eruption had an acute onset without scaly or varioliform lesions.

DR. PAUL GROSS: May I ask the members of this section how often they have observed the development of a generalized papulonecrotic tuberculid after the injection of tuberculin into a patient who did not have tuberculosis of the skin before the injection? I have never seen it.

DERMATITIS HERPETIFORMIS OR ERYTHEMA MULTIFORME BULLOSUM? Presented by DR. VAN ALSTYNE CORNELL.

J. S., a man, aged 29, born in Ireland, first called at the skin clinic of the New York Post-Graduate Hospital, on Oct. 15, 1930. He stated that the eruption had begun four and a half months previously. There had been an extensive eruption on the buttocks, back and lower extremities. There had been some grouping of the lesions. The lesions varied in size from that of a pinhead to that of a pea and some of them were as large as a coin. Some of them were superficially crusted. Some of the lesions were vesicular, especially on the backs of the lower extremities. There were pea-sized, crusted lesions on the face and on the front of the trunk. There were a few lesions scattered over the abdomen and knees. There were no lesions in the mouth or on the genitals. There was considerable itching. The patient gave a history of remission.

A patch test with 25 per cent potassium iodide ointment was plus minus; with 50 per cent ointment it was one plus. The blood smear showed 3 per cent eosinophils. The biopsy favored a diagnosis of dermatitis herpetiformis.

DISCUSSION

DR. RAY H. RULISON: The condition impresses me as dermatitis herpetiformis.

DR. EDWARD R. MALONEY: It seems to me the diagnosis of dermatitis herpetiformis is the probable one. The arrangement of the lesions, the distinct grouping and the location seem to be factors sufficient to warrant the diagnosis.

DR. FRED WISE: I agree with the last speaker. I think that Duhring's disease as a diagnosis is much more reasonable than erythema multiforme bullosum. I make that diagnosis because of the presence of pigmented macules over the sacrum and on the lumbar region. One of the characteristic signs of Duhring's disease is the formation of pigmented spots in that region. As the eosinophilia may vary from day to day, it is quite possible that on taking another blood count tomorrow, one would have an eosinophil count of from 20 to 30 per cent.

DR. SIGMUND POLLITZER: The clinical picture presented to me an aspect rather favoring the diagnosis of Duhring's disease. At the same time, for a

positive diagnosis of Duhring's disease one wants a history of remission, of periods of freedom and recurrence. In this case, the eruption has been present only a few months and the patient had never had it before, so that we lack that important element in the diagnosis of Duhring's disease. A diagnosis of pemphigus in an early stage has not been mentioned, but I think it is well to consider that as a possibility. Cases of pemphigus occasionally begin with the picture shown in this case and after many months go into clearcut pemphigus. If pinned down to a diagnosis, I should say Duhring's disease, with a question mark.

DR. JOHN FRANK FRASER: The histologic picture is very much in favor of the diagnosis of Duhring's disease.

DR. MAX SCHEER: Since the potassium iodide skin test was inconclusive, I suggest that the patient be given the drug by mouth to see if there will be an aggravation of the eruption.

DR. VAN ALSTYNE CORNELL: The two diagnoses were made before observations at biopsy were reported. There were no lesions in the mouth. There was some grouping of the lesions and I believe I noted a slight pigmentation in a few areas. I therefore believe the diagnosis of dermatitis herpetiformis to be correct.

MELANOCARCINOMA. Presented by DR. FRED WISE.

A. P., a man, aged 56, presented himself at the clinic of the New York Post-Graduate Hospital with a history of trouble with his left big toe that dated back eight years. At that time a barrel had fallen on his toe, which had caused the loss of his toe-nail. For two years subsequently he had been well. Six years ago, his toe had become sore and since that time had troubled him. Within the last few months the process had become much worse.

On examination, the left big toe was found to be much enlarged and a dusky red. The dorsum of the toe showed the absence of the nail and was covered with a yellowish exudate and with granulation tissue. The eponychium was irregular and in some places it was of a black, gangrenous color. There was no glandular adenopathy. The Wassermann reaction was negative. There had been no palpable adenitis and the urine was free of sugar.

DISCUSSION

DR. JOHN FRANK FRASER: I agree with the diagnosis. Clinically, the appearance suggests malignant melanoma. What is apparently a metastatic lesion can be seen in the skin on the dorsum of the foot. The foot should be amputated.

DR. CHARLES WOLF: Before accepting the diagnosis of melanosarcoma, I believe that other conditions ought to be ruled out, especially diabetic gangrene. This particular case does not correspond to melanocarcinoma for the reason that there are no regional metastases. With a lesion so far advanced there should be enlarged lymph nodes in the groin on the side of the lesion. I understand that no regional glands are to be felt. However, the urine was negative for sugar. I would suggest a blood sugar determination.

DR. FRED WISE: Dr. Wolf is right in stating that the blood examination should be made for sugar content; it will be done shortly. The fact that there is a small pigmented spot about three quarters of an inch away from the original lesion indicates melanocarcinoma. Amputation will not be performed without careful examination to exclude possible diabetic gangrene or gangrene from other causes.

ICHTHYOSIS. Presented by DR. SIGMUND POLLITZER.

E. K., a boy, aged 12 years, born in the United States, of Polish parents, was presented through the courtesy of Dr. S. Oleynick. No family history was obtained. There had been no consanguinity of parents. The child had been born with a skin that seemed to the parents to be exceptionally dry, and he was 18

months of age before the changes of the skin that were visible at the time of presentation had started to develop. The boy felt generally well except that he complained often of itching.

The skin of the body and especially the extensor surfaces of the extremities showed the symptoms of keratosis pilaris of various degrees. The flexor surfaces were free. The palms and soles were covered with wartlike formations. A few of them were also to be noticed on the backs of the hands. The skin of the heels and edges of the soles was highly thickened and hyperkeratotic.

The lips and the mucous membrane of the nostrils showed persistent exfoliation; also the angles of the eyes. The nails showed degenerative changes; they were lusterless and partly discolored and thickened.

DISCUSSION

DR. FRED WISE: I agree with the diagnosis of ichthyosis. The lesions of the palms and soles, which resemble those of Darier's disease, are an example of keratoderma dissipatum hereditarium.

DR. PAUL GROSS: Dr. Wise did not make it clear that the keratoderma dissipatum is only a circumscribed variety of keratoderma palmare et plantare hereditarium. The combination with ichthyosis, as presented in this case, is also seen occasionally in the typical hereditary keratoderma.

DR. WALTER JAMES HIGHMAN: What is the significance of the term dissipated?

DR. SIGMUND POLLITZER: The ordinary keratoderma involves the entire surface of the palms and usually the soles in an unbroken sheet of thickened horny layer. In this case the keratoderma is limited to very small areas; whence the term dissipated means scattered. As far as I know, no case of this kind has been shown before in this section. It is extremely rare; its association with ichthyosis in this case is interesting and unusual. Both conditions represent a congenital hyperkeratosis.

DR. ISADORE ROSEN: I agree with the diagnosis as presented, but would like to suggest another possibility, and that is a nodular type of psoriasis. The eruption around the mouth and the keratotic palmar lesions suggest this diagnosis.

DR. WALTER JAMES HIGHMAN: The condition is congenital.

DR. LEWIS BYRNE ROBINSON: I should like to hear the result of an examination of the lips and eyelids for monilia. The eruption in these locations suggests a fungus dermatitis.

DR. SIGMUND POLLITZER: The lesions about the mouth and at the inner angles of the eyes have probably nothing to do with the keratoderma. The suggestion that it might be a fungus infection is worth considering.

PSORIASIS. Presented by DR. ISADORE ROSEN.

P. S., a man, aged 31, born in the United States, first called at the clinic of the New York Post-Graduate Hospital on Oct. 1, 1930, and stated that about four years previously he noticed on the face, a slight eruption, which gradually extended. Two years later it appeared on the hands.

On examination an extensive eruption was noticed over the cheeks, upper lip, chin and neck and extending to the chest. It was well defined, bluish-red, and there were moderate scaling and crusting. On the backs of the hands there were similar patches. There were also scaling and crusting covering the scalp. There were erythematous, papular, scaly lesions over the palms. The nails were rigid, discolored and pitted. There was an eczematous eruption on the eyelids. A microscopic diagnosis of psoriasis was made.

PSORIASIS. Presented by DR. ISADORE ROSEN.

B. H., a man, aged 27, married, born in Russia, first called at the skin clinic of the New York Post-Graduate Hospital on Oct. 20, 1930. He stated at that time

that two months previously an eruption had appeared on the palm of the right hand. On examination, there was a large, sharply defined, scaly, erythematous lesion. On both elbows there were well defined, slightly scaly, psoriatic lesions about the size of a quarter. The Wassermann reaction was negative.

DISCUSSION

DR. CHARLES WOLF: The palmar lesions of the first patient appear to be vesicular; the lesions on the dorsum of the hand are sharply circumscribed with peripheral vesicles. I believe dermatophytosis should be considered in spite of the microscopic diagnosis of psoriasis. The lesions on the face look more like a fungus sycosis than like psoriasis.

DR. EUGENE TRAUB: The first patient is a chauffeur. I saw him when the eruption first appeared and at that time it was a typical sycosis vulgaris, i. e., deep-seated pustules about the hair follicles of the bearded region. He was given eight x-ray treatments. He now has lesions on the scalp, especially about the hair follicles, and the lesions on the palms are definitely vesicular. Neither of these symptoms are present in the picture of psoriasis. I doubt that this man has psoriasis. The nail lesions, too, might apply to many conditions other than psoriasis.

DR. M. B. PAROUNAGIAN: I treated the first patient at Bellevue Hospital sometime during the summer. My diagnosis was sycosis of the face. As far as I can recall, he had no lesions on the hands at the time. After several visits he discontinued treatment.

DR. FRANK C. COMBES: I disagree emphatically with Dr. Wolf in his oipinion that the condition on the face of the first patient suggests a fungus sycosis. It does not in any way suggest that disease. In the first place, it has not the familiar carbunculoid lesion of that disease and, in addition, a fungus sycosis is rather uncommon above the angle of the jaw. I recall, however, a case which was presented here last year, in which it did occur above the angle of the jaw. That was an unusual case. As to the lesions on the hands, from a clinical standpoint I can see no other diagnosis at present than dermatophytosis. The nails do not suggest psoriasis. In psoriasis one sees pitting and subungual hyperkeratosis. The patient has neither. While these characteristics are by no means pathognomonic of psoriasis, they are quite constant in cases of psoriasis of the hands. I cannot understand how the report of the biopsy could suggest the pathology of psoriasis, in view of the clinical picture that the patient presents.

DR. PAUL GROSS: The first patient is a chauffeur and is handling oil and that could explain the lesions on the backs of the hands, which are follicular pustules healing up and leaving erythematous and scaly patches. The vesicular eruption on the palms could be an eczematous reaction to oil or its impurities. We know that sycosis vulgaris is often aggravated by oil. In treating this patient, I would avoid the use of ointments.

DR. WALTER JAMES HIGHMAN: You do not believe that he has psoriasis?

DR. PAUL GROSS: No, I do not believe that the patient has psoriasis.

DR. LOUIS CHARGIN: A competent dermatologist and histopathologist made a diagnosis of psoriasis in this case on the lesion excised from the back of the hand. We must therefore accept the diagnosis of psoriasis of the hands. But I do not think that the lesions on the face, scalp, palms and legs can be considered psoriasis. This is clearly a different process.

DR. WALTER JAMES HIGHMAN: I should be at a loss to understand a case so typically not psoriasis that could give a histologic picture of psoriasis. I suppose it is possible for a lichenified process to resemble psoriasis and that that lesion, by accident, was examined microscopically. Clinically, I do not think this can be constructed as a case of psoriasis. Moreover, I object to using the term histologic diagnosis. There can be only a histologic interpretation of lesions. Some lesions are highly characteristic and a presumptive opinion that

approximates a diagnosis may be rendered. I think it is incorrect to talk of histologic diagnosis and it should not be done if we can overcome the kind of mental inertia that this usage indicates.

As regards the second case, it may be dermatophytosis or occupational dermatitis. I suppose that Dr. Rosen had that in mind and it will be studied from that standpoint.

DR. ISADORE ROSEN: I am pleased that these cases have brought out such interesting discussions. I think that at these sessions more of the unusual types of the commoner dermatoses should be shown because it is these cases that present diagnostic difficulties. I saw a patient treated for dermatophytosis in whom all of the nails had been removed surgically in the hope of curing the disease, only to find the new nails again involved with typical psoriasis.

GRANULOMA PYOGENICUM (?). Presented by DR. HERMANN FEIT.

A physician, aged 34, noticed his present condition one year prior to presentation. The eruption was located on the dorsal surface of the fourth right toe, extending to the nail bed, and the patient thought it had been caused by rubbing the toe on the shoe. There had been a slight amount of bleeding on about six occasions during the past year. There was no sensation whatever.

Examination showed a soft brownish-red tumor, the size of a lentil, over the end phalanx of the fourth right toe.

DISCUSSION

DR. MAX SCHEER: I do not think that the lesion has any of the clinical characteristics of granuloma pyogenicum. The latter is usually a pedunculated, dusky red, elevated growth. The lesion looks to me like a pigmented mole.

DR. LEO SPIEGEL: I agree with Dr. Scheer. I think that the redness around the lesions this evening is due to handling.

DR. CHARLES WOLF: The lesion looks innocent and trivial, but I would issue a word of warning and that is that this lesion might develop into a melanocarcinoma at a future date.

DR. WALTER JAMES HIGHMAN: I cannot conceive of a granuloma pyogenicum lasting a year and being as small as this. I think it is a mole, with the potentialities of such lesions.

DR. HERMANN FEIT: All kinds of diagnoses were offered, ranging from a "pimple" to a melanotic carcinoma. One diagnosis was traumatic angioma. The patient gives a history of frequent bleeding so that the sock sticks to the skin. It is no doubt a vascular type of lesion, a granuloma of some kind, but I cannot see any pigmented mole. I presented this patient in order to get information as to whether it is a benign or a malignant growth. The diagnosis previously suggested by Dr. Cannon, of traumatic angioma, is plausible. We will remove the whole tumor and see if it falls into that group. That a pyogenic granuloma has to be pedunculated is news to me.

PITYRIASIS LICHENOIDES ET VARIOLIFORMIS. Presented by DR. ISADORE ROSEN.

A. B., a man, aged 41, born in Russia, first called at the skin clinic of the Post-Graduate Hospital on Oct. 22, 1930. He stated at that time that one and a half years previously he first noticed an eruption appearing on his body. There was a generalized eruption with the exception of the face. The lesions were erythematous and scaly; on the backs of the hands the lesions were flat, shiny, lichenoid-like papules. There were shiny, flat papules on the glans penis. There was a psoriatic patch, the size of a fifty-cent piece, on the right side of the trunk. In places the scales were micaceous in appearance. There was no itching. The Wassermann reaction was negative. There were some necrotic lesions on the wrists and palms.

DERMATITIS FACTITIA. Presented by DR. JOSEPH J. ELLER.

M. C., a woman, aged 17, a clerk, first presented herself at the clinic of the New York Post-Graduate Hospital with a lesion in the left deltoid region, which had been present for three weeks. The lesion consisted of numerous ruptured vesicles surrounded by zones of erythema, and covered an area of about 1 by 3 inches. The patient gave a history of a similar lesion, which occurred previously on the dorsum of the left hand one month prior to presentation. Two weeks before presentation the patient had returned with a new and similar lesion on the dorsum of the left hand. A tentative diagnosis of recurrent herpes or dermatitis factitia had been made. The lesion had not responded to local treatment. A cast had been applied for nine days and at the time of removal the area had healed and was normal in appearance. Five days later there had been a recurrence of the lesion and a cast had been reapplied. One month later the cast had been removed and normal skin was found.

Neurologic examination showed an absence of pharyngeal and corneal reflexes with the presence of hyperactive knee reflexes.

A CASE FOR DIAGNOSIS (SCHAMBERG'S PROGRESSIVE PIGMENTATION?). Presented by DR. E. W. ABRAMOWITZ.

A. M., a woman, aged 46, married, born in Poland, had come to the skin clinic of the New York Post-Graduate Hospital on Oct. 30, 1930, with an erythematous pustular eruption on the face, resembling acne, said to be of ten days' duration. She claimed that similar lesions had appeared two months before that and had lasted two or three weeks. The eruption was thought probably to be acne varioliformis.

On further examination it was discovered that there was a mottled pigmentation which involved the entire circumference of the legs and that scattered among these pigmented areas there were minute vascular puncta, but no atrophy. She received some injections for about two months for some nasal condition she had had eight years previously. She had one son and had had no miscarriages. The Wassermann test was negative.

The biopsy showed a slight atrophy of the epidermis with a slight hypertrophy of the collagen, but no pigment.

EPIDERMOLYSIS BULLOSA. Presented by DR. CHARLES LERNER.

S. K., a boy, aged 4, born in the United States, had first come to the clinic of the New York Post-Graduate Hospital on May 5, 1930. He presented on the soles and about the toes, large bullous and pyodermic lesions which were discrete and sharply defined and varied in size from that of a pea to that of a coin. On the thumbs and forefingers of the hands he had one or two smaller lesions. No lesions were found on other parts of the body. There were no scars from other lesions. The history of the child showed that he had had the condition since he was 2 days old, and a history of the father, grandmother and one uncle and two aunts (all on the paternal side) showed that they had been afflicted with a similar condition. The lesions occurred only as a result of traumatism and were always bullous at first.

LICHEN PLANUS WITH INVOLVEMENT OF PALMS AND NAILS. Presented by DR. HERMANN FEIT.

M. McC., a man, aged 41, a warehouse worker, born in the United States, had first noticed a rash following sunburn two and a half months prior to presentation. The eruption involved the upper and lower extremities and shoulders. There had been no itching, only stiffness of the hands due to extreme dryness. Local remedies had aggravated the condition.

The patient was first seen on October 14, at which time he showed an almost symmetrical eruption in the aforementioned locations, consisting of numerous

isolated, small, shiny, polygonal papules. Many grouped, coalescing patches of a reddish-violaceous color were present, varying in size and shape. Some of the lesions were markedly raised above the surface of the skin. These were infiltrated and had a closely adherent scale. On the dorsal surface of the hands and fingers there was a diffuse mosaic-like coalescence of larger elevated papules.

The palmar surface of the hands showed a similar coalescence of papules, some resembling deep-seated vesicles and some with a marked umbilication. In the center was a whitish, yellowish, dry hyperkeratotic area, from 2 to 4 mm. in diameter, which was thickened and adherent and disclosed fissures and rhagades.

The nails of several fingers showed marked pitting and thinning, longitudinal striation, brittleness, and slight grooving and were of a dark grayish-yellow discoloration. The plantar surfaces of the feet were free. On the inner surface of the cheeks were slightly projecting grayish-white patches irregularly outlined but visible with surrounding erythema.

UNIVERSITY OF CHICAGO, DIVISION OF DERMATOLOGY OF THE DEPARTMENT OF MEDICINE

Scientific Session, Nov. 7, 1930

CASES PRESENTED FROM THE SERVICE OF DR. S. W. BECKER AND DR. E. B. RITCHIE

ARGYRIA FROM SILVER ARSPHENAMINE.

A man, aged 53, had a positive Wassermann reaction of the blood five years before admission. Examination of the cerebrospinal fluid was said to have given negative results. He had been treated with neoarsphenamine, and some intragluteal injections had been given. In addition, he had received sixty injections of silver arsphenamine (about 16.5 Gm.) over a period of four years. The skin presented a grayish, metallic tint, most noticeable on the scalp, the face, the neck and the hands. The oral mucous membrane was cyanotic. A grayish tint was present on other parts of the body. The Kolmer, Wassermann and Kahn precipitation reactions of the blood serum were strongly positive. Examination of a microscopic section from the nape of the neck showed granules in the superficial dermis (fig. 1). The granules were insoluble in concentrated acetic acid, ammonium hydroxide and potassium cyanide. They discolored but did not disappear in concentrated nitric acid. Hydrogen dioxide did not bleach them. The prussian blue reaction for iron was negative. These reactions corresponded to those of silver.

In discussing a case of argyria following the use of silver arsphenamine (ARCH. DERM. & SYPH. **22**:520 [Sept.] 1930) Spiegel quoted Haberman, Sioli and Mucha as stating that argyria does not occur until after the patient has received 15 Gm. of the drug. Our patient received about 16.5 Gm. In the discussion the possibility of the granules being arsenic or bismuth was mentioned. A section of skin was removed from the nape of the neck of a patient who had received forty-seven injections of arsphenamine and ninety-five of bismuth in four years. No granules could be found (fig. 2). A similar section was removed from a patient who had received considerable treatment, including six injections of silver arsphenamine. No granules were found.

SARCOID (SYPHILITIC).

A woman, aged 47, first seen on Oct. 13, 1930, had had lesions on the elbows and hand for fifteen years. These lesions first appeared as subcutaneous nodules on the flexor surface of the fingers of the right hand (fig. 3) and on the elbows

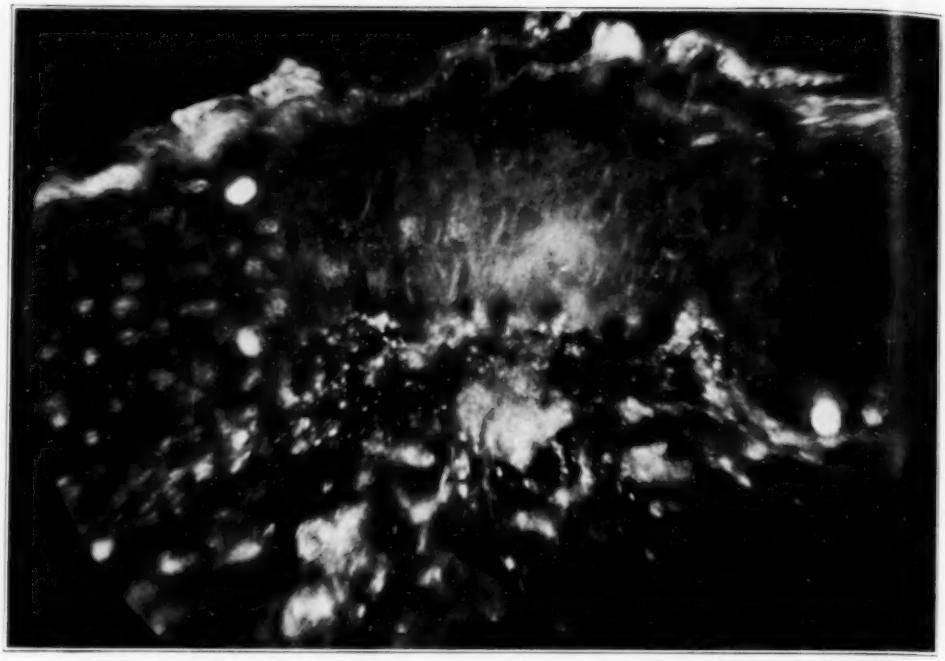

Fig. 1.—Section of skin showing silver granules; oil immersion dark field. Pyronin methyl green stain.

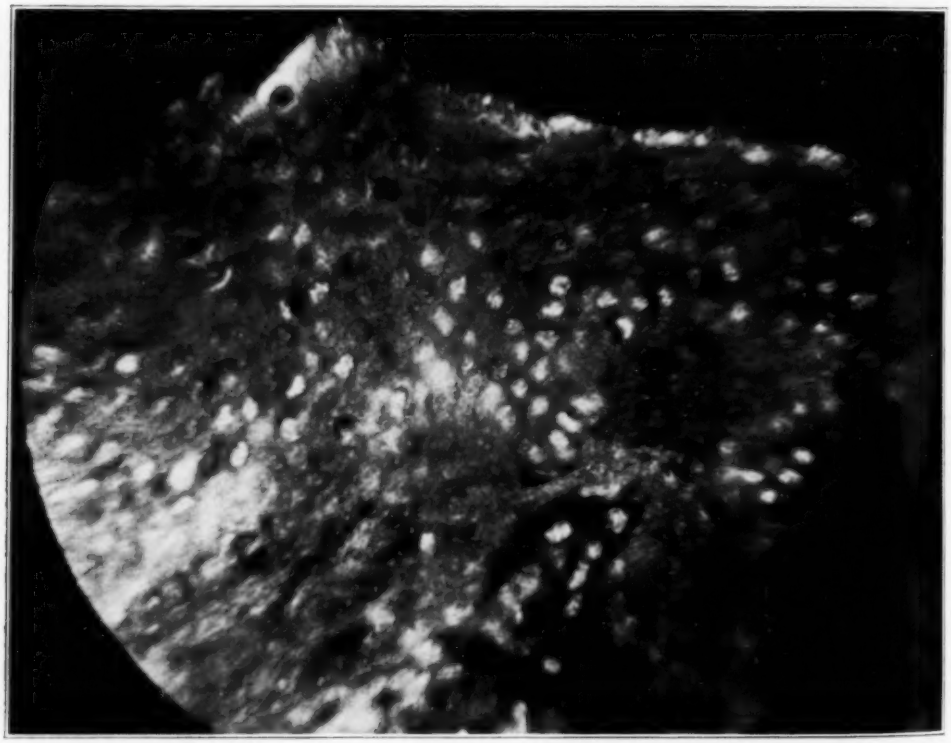

Fig. 2.—Section of skin showing no silver granules; oil immersion dark field. Pyronin methyl green stain.

(fig. 4). No subjective symptoms were present. During the past two years the tumors had become dusky red. The patient had been married at the age of 24 and separated from her husband at the age of 27. She had had one miscarriage and no other pregnancies. The patient gave no other history referable to syphilis,

Fig. 3.—Sarcoid. Lesion on middle finger.

Fig. 4.—Sarcoid. Lesions on elbow.

and no other signs were found on examination. The Kolmer, Wassermann and Kahn reactions of the blood were strongly positive. Examination of the spinal fluid gave negative results. The urine showed much sugar and a diagnosis of diabetes mellitus was made.

Microscopic section showed sarcoid structure of Darier-Roussy type. Pautrier (*Ann. de dermat. et syph.* **5**:344, 1914) reported a similar case of proved syphilis

in a patient with lesions that were healed by the administration of mercury. He emphasized the fact that the sarcoid reaction may be produced by syphilis as well as by tuberculosis. After eight injections totalling 0.8 Gm. of a suspension of bismuth salicylate oil (containing 10 per cent bismuth salicylate) the lesions were about 50 per cent improved.

Chordotomy for Relief of Gastric Crisis.

History.—A machinist, aged 44, first seen on Jan. 1, 1928, complained of vomiting for one month and of associated epigastric pain and hiccup for four days. Pain and vomiting had been intermittent for six years. For the past three to four years he had had sharp pains in the legs and the arms and urinary incontinence and retention. He had had a primary lesion at the age of 18, for which he had been given treatment for several weeks. At the age of 38 he had been treated with neoarsphenamine, mercury and bismuth, together with some intravenous injections of typhoid vaccine.

He was found to have Argyll Robertson pupils, with loss of patellar and Achilles reflexes. Kolmer, Wassermann and Kahn precipitation reactions of the blood were strongly positive. The cerebrospinal fluid showed: 19 cells per cubic millimeter, quantitative Kolmer-Wassermann reaction, negative; slight trace of globulin, and a negative Lange colloidal gold curve. The ocular fundi showed slight paling of the temporal portion of the disks. A diagnosis of tabes dorsalis was made. The patient was hospitalized for twenty-eight days, and from this time until May 9, 1930, he was admitted seven times with the same symptoms, with an average hospitalization period of twenty-eight days. Treatment was palliative during hospitalization. In the meantime, he was treated by means of large doses of iodides administered intravenously, bismuth intragluteally and arsphenamine, without apparent benefit.

On May 13, 1930, chordotomy was performed by Dr. Percival Bailey at the level of the third thoracic vertebra. There was immediate analgesia up to the seventh thoracic segment on the left and to the ninth thoracic segment on the right. On June 9, 1930, neurologic examination showed complete destruction of the spinothalamic tracts up to the level of the ninth thoracic segment and partially up to the level of the sixth thoracic segment. On August 6, absence of sensation of pain, heat and cold from the sixth thoracic segment downward was observed.

Postoperative Course.—On Aug. 20, 1930, the patient complained of nausea, loss of weight, incontinence and urinary retention of three days' duration, not associated with pain. He remained in the hospital only seven days. When last seen he felt much better, but had difficulty in maintaining his equilibrium.

Neurodermatitis Accompanied by Asthma and Sensitization to Silk.

A woman, aged 30, first noted pruritus of both legs following the birth of her first child, seven and one-half years previous to presentation. Following scratching, a dermatitis appeared, which was later noted on the arms, the face, the neck and the upper part of the chest.

Physical examination gave entirely negative results. She gave a history of having had asthma. Scratch tests by Dr. Harry Huber were all negative, with the exception of the test made with silk, which provoked marked reaction. Application of various samples of silk to the skin for from twenty-four to forty-eight hours resulted in no reaction, although an urticarial wheal could be produced in places by friction. The wearing of silk clothing did not aggravate the dermatosis.

Raynaud's Disease with Scleroderma.

A milliner, aged 44, was first seen on Oct. 23, 1930, complaining of stiffness of the fingers, with slight stiffness of the face on awakening in the morning. About two years before admission she noted that the fingers became swollen and bluish, with a feeling of fulness produced by cold. This was followed by

blanching. The fingers gradually thickened, until she had difficulty in closing her hand or doing her work. The thickening extended to the arm, and recently stiffness in the face had been noted in the morning.

A diagnosis of Raynaud's disease with scleroderma was made, and the patient was referred to the neurological division for consideration of sympathectomy. She was hospitalized, and the vasomotor index was determined by the intravenous administration of typhoid vaccine and the comparison of the temperatures of the hand before and after giving the vaccine. The index was found to be 2.5, which showed that the poor circulation was due to spasm and not to actual closure of the vessels.

Fig. 5.—Pityriasis rosea (vesicular). Left side of thorax.

Sympathectomy was performed by Dr. Percival Bailey and resulted in marked improvement on the side on which operation was performed.

ELEPHANTIASIS ACCOMPANYING FUNGUS INFECTION OF THE FOOT (TWO CASES).

A housewife, aged 52, complained of pain and swelling of the left foot. She had had inflammation of the sole of the foot, with exfoliation for many years, preceding the swelling. Five years previous to presentation she had inflammation and swelling of the anterior portion of the dorsum of the foot, which was treated by heat and incision. No pus was obtained. One year later, pain and swelling recurred, and for the past months the swelling and pain had recurred at frequent intervals.

At the time of admission the sole of the left foot was covered with vesicles and exfoliating epidermis in which *Mycelia* were found in great abundance. The skin over the toes was thickened, especially over the great toe. The anterior portion of the foot was edematous. Unna's zinc lime gelatin dressing gave little relief.

General examination gave negative results.

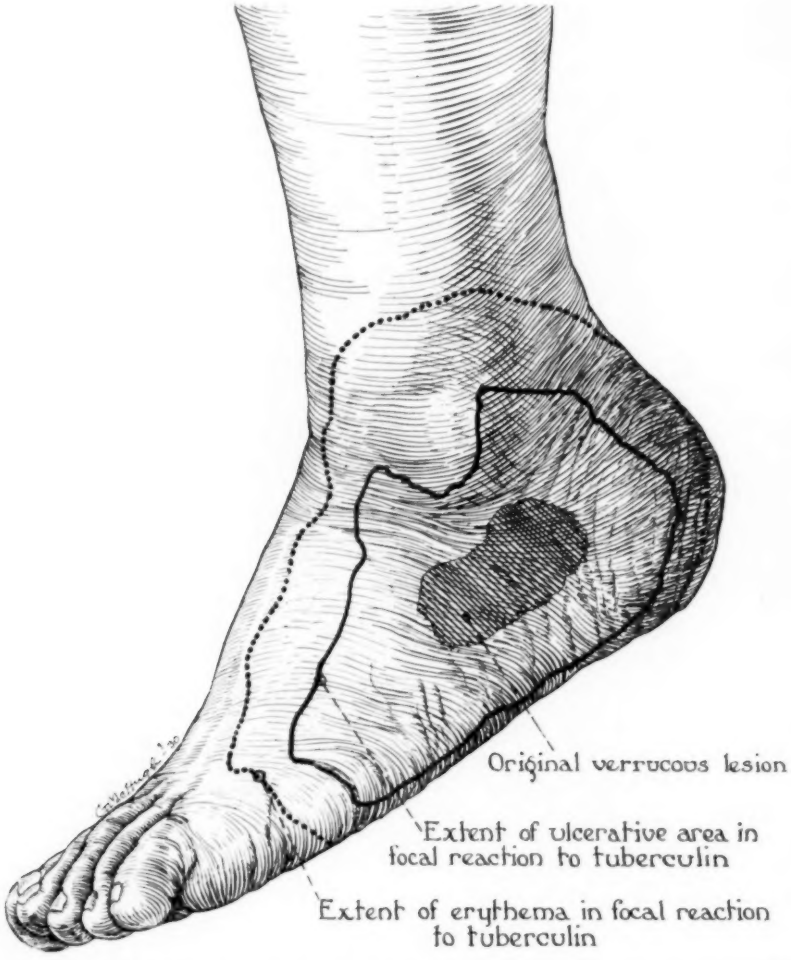
Original verrucous lesion
Extent of ulcerative area in focal reaction to tuberculin
Extent of erythema in focal reaction to tuberculin

Fig. 6.—Diagrammatic representation of extent of various lesions constituting focal reaction to tuberculin.

In another case that we have studied, a patient, aged 60, a lawyer, seen on May 7, 1928, complained of swelling of the right foot and toes. The swelling of the foot had been noted after an operation on the veins of the leg in 1926. The foot had swollen, especially in the anterior dorsal portion, and had been incised, but nothing of importance was found. The skin over the anterior portion of the foot and the toes became thickened. The chief difficulty was swelling and discomfort during extremely hot weather encountered in tropical countries. The

patient had had previous treatment for ringworm of the feet. No history of a condition similar to lymphangitis could be elicited.

Examination showed slight edema of the right leg below the knee, involving the ankle and dorsum of the foot. The foot and leg were of normal color and warmth. Pulsation was present over the popliteal, posterior tibial and dorsalis pedis arteries. Over the dorsal anterior portion of the foot and toes, especially

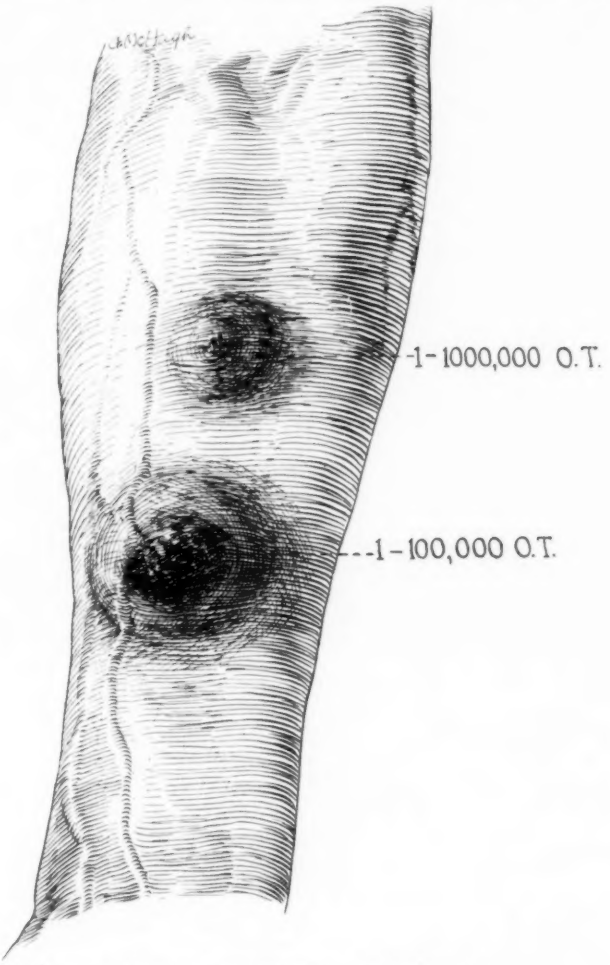

Fig. 7.—Left arm, showing local reaction to tuberculin.

the second, third and fourth toes, the skin was thickened. *Trichophyton gypseum* was cultivated from epidermis between the toes. A diagnosis of elephantiasis and fungus infection was made. Treatment by means of radium and the roentgen ray was followed by some relief.

PITYRIASIS ROSEA (VESICULAR).

A man, aged 22, had had a pruritic eruption on the inner aspect of the right arm for one day. The condition had quickly spread to involve the entire trunk, neck, arms and thighs. Pruritus interfered with sleep. No history of contact

with other cases could be elicited. When seen, he presented vesicopapules over the trunk, the arms and the thighs. On the lateral thorax they were oval and were arranged with their long axis parallel to the lines of cleavage (fig. 5). The vesicles were superficial, and most of them were on papules. A biopsy specimen showed edema and microscopic vesiculation, but no large vesicles.

Klauder (*J. A. M. A.* **82**:178 [Jan. 19] 1924) stated that vesicular pityriasis rosea is unusual, and quoted three publications, those of Little, Colcott Fox and Wile. Wile's case was one of papular pityriasis rosea, in which the papules were situated over pseudovesicles. Little's and Colcott Fox' patients presented vesicles on the hands and feet, but not on the trunk. Our patient presents vesicles on most of the lesions. In many cases microscopic vesicles are found, and it is likely that the macroscopic vesicles are merely the result of exaggeration of this process.

MARKED HYPERSENSITIVENESS TO TUBERCULIN IN A PATIENT WITH PAPULONECROTIC TUBERCULIDS.

A man, aged 48, presented a small ulcer on the left foot, which had appeared three years previously, following an injury to the foot. It had slowly become worse. The patient had had lesions on both legs at various times, to which he had paid but little attention.

Physical examination revealed nothing of importance, with the exception of the condition of the legs. Search for other tuberculous foci was unavailing. On the outer aspect of the left foot just below the ankle, there was a patch of vegetative dermatitis, rather dry, with a small central ulcer. On both legs were atrophic, hyperpigmented scars. Diagnosis was made of probable tuberculid, and 0.2 cc. of old tuberculin 1 : 100,000 and 1 : 1,000,000, were injected into the flexor surface of the left arm. Twenty-four hours later the reaction to the former was strongly positive and to the latter, positive. The foot became swollen, and five days after the tuberculin test the patient was unable to work. The foot was greatly swollen and erythematous, and the original vegetative lesion was replaced by an ulcer four or five times as large (fig. 6). The ultimate local reaction to a solution of 1 : 100,000, consisted of a bluish black necrotic lesion, and the reaction to 1 : 1,000,000, was erythema and swelling (fig. 7). The tuberculin was used in testing two known tuberculous patients but only the usual reaction was encountered.

ATLANTIC DERMATOLOGICAL CONFERENCE

RUDOLPH JACOBY, M.D., *Secretary*

Boston, Nov. 10, 1930

WALTER T. GARFIELD, M.D., *Chairman*

TUBERCULID: CHROME ULCERATION (?). Presented by DR. E. LAWRENCE OLIVER, Boston.

A white man, aged 38, a baker, presented on the extensor surfaces scaly and crusted lesions varying in size from that of a pea to that of a bean. This eruption had been present two and one-half years. There were three or four ulcerated lesions with a punched-out appearance on the extensor surfaces of the arms and legs. The Wassermann and Hinton reactions were negative. Local treatment and light therapy gave no relief.

DISCUSSION

DR. C. MORTON SMITH, Boston: This case represents one of the questions that are constantly arising concerning dermatitis and its relationship to the Workingman's Compensation Act. At one time this patient passed as having a case

of chrome poisoning. In the number of cases that are now seen in which compensation is sought, one of the puzzling problems is that of a definite industrial dermatitis complicated with some of the fungus infections. To determine where the injury leaves off and the dermatitis begins is rather difficult. We ought to be on the alert, because the insurance companies are.

DR. J. H. SWARTZ, Boston: I noticed today that the patient had a lesion on the dorsum of the small finger of the right hand, suggestive of the application of either silver nitrate or nitric acid. I questioned him, but he denied applying any preparation. I believe, however, that this is a case of dermatitis factitia.

DR. L. J. CUMMINS, Boston: I saw the lesion and asked the patient about it. A biopsy has been done, but the section was lost. He told me that the mark was made by the surgeons. A biopsy was to have been done today, but the patient was late.

DR. J. H. SWARTZ: He said that this lesion was only a recent one, and that some of the other lesions had appeared in the same way.

DR. J. C. DOWNING, Boston: I agree that there is a definite indication of the application of either silver nitrate or nitric acid. The patient said that the lesion had been present only three or four days. Such a deep-seated lesion could never have been developed from a mere abrasion.

DR. C. G. LANE, Boston: I saw this man a little over a year ago when the question of compensation was being considered, and he presented much the same appearance as he does now. At that time I took the trouble to investigate dermatitis caused by chrome, and as nearly as I could find, the general opinion is that chrome getting into cuts, cracks and fissures in the skin causes the so-called chrome holes or chrome ulcers which are very slow in healing; but if the man stops work, that is, stops his contact with the chrome, healing may be slow, but no new ulcers are formed. This man has been out of the work two and a half years, and so far as I can find out, he is not coming in contact with chrome in his work as a baker. When I looked him over to mark a spot for a biopsy, he called attention to a new lesion that had appeared on the buttocks and on the upper part of the thigh, one of the earliest lesions present. I shall be interested to watch this particular lesion to see whether it goes through the same cycle of three or four months as the previous lesions did.

CAROTINEMIA. Presented by DR. C. G. LANE, Boston.

A white man, aged 38, a tanner, showed a decided yellow color of the skin, particularly of the palms, of from six to eight months' duration. The sclerae were clear. There was a history of diabetes, probably dating to early in 1929. The patient was given insulin and placed on a dietary regimen. The skin gradually became yellow.

DISCUSSION

DR. E. L. OLIVER, Boston: This case interested me because I saw the patient some time ago. He then gave a history of having had diabetes and all starch and sugar were excluded from the diet, carrots being added three times a day. This yellowish pigmentation developed while he was on that diet.

LICHEN PLANUS. Presented by DR. M. TOLMAN, Boston.

A white boy, aged 14, showed a generalized eruption of bluish-red, flat-topped, somewhat angular papules, with many large confluent areas covered with whitish scales, of about two months' duration. There were many whitish papules in the mouth. The eruption caused little itching. General physical examination gave negative results, except that the tonsils were found to be hypertrophied. The laboratory examination gave negative results. The patient is being treated with mercuric salicylarsenate and is showing improvement.

DISCUSSION

DR. R. L. SUTTON, Kansas City: This case is interesting because of the probable emotional disturbance which led to this outbreak. Recently we had reason to look up a number of cases of lichen planus, and we found that the condition was commonly associated with emotional disturbance. That idea was not original with us, but we found that emotional disturbance and nervous strain predisposes to lichen planus. We found it in school teachers and children, when fear of their work was present, and an emotional disturbance is evident in the case presented today. I do not think that is the cause of the eruption, but I think that such a disturbance lowers the resistance to some morbific factor which brings on the attack.

DR. L. W. KETRON, Baltimore: When Dr. Guy came over here four or five years ago, he brought out the point that lichen planus had not increased in England during the war. I am pretty sure that I am correct in that, and it is rather interesting as one would think that the emotions in London would be at rather high pitch during the air bombardments, etc., and if that had much to do with the outbreak of lichen planus there would have been an increase in the number of cases during the war.

DR. C. J. WHITE, Boston: I should like to corroborate Dr. Sutton's belief. A good many years ago I was asked to give a report on this subject before the American Dermatological Association. I analyzed all my cases, and in 65 per cent there was an emotional stress continued over a good many years, and as I said at the time, I believe that it is more than a coincidence.

DR. E. J. TROW, Toronto: I have heard Dr. Guy express his opinion on this point, and he does not recall seeing a man on active service overseas with lichen planus.

DR. A. G. NADLER, New Haven, Conn.: A farmer living in my neighborhood had an attack of lichen planus. He was worrying considerably about the result of his crops, and after he had gathered his crops and received the money for them, the lesions almost entirely disappeared.

HEMIATROPHY; ALOPECIA. Presented by DR. L. J. CUMMINS, Boston.

A white woman, aged 22, two and one-half years before presentation suddenly began to lose her hair, and a small area on the left side of the scalp became quite bald. Later other areas developed. A depression in the skin and loss of hair in the eyebrow were also noticed. The left side of the scalp showed a bald area 1½ inches (3.7 cm.) in diameter with marked atrophy. The eyebrows were thin. The basal metabolic rate was plus 6. Roentgenograms of the skull and teeth were negative. The Wassermann and Hinton reactions were negative. No relief was obtained from ultraviolet light and from local treatment.

DISCUSSION

DR. W. P. BOARDMAN, Boston: It seemed to me that the condition is more like a scleroderma with a diffusion, such as we see many times. I think it is scleroderma, although hemiatrophy and scleroderma are closely associated.

PEMPHIGUS. Presented by DR. E. LAWRENCE OLIVER, Boston.

A white man, aged 52, a stationary fireman, had a generalized eruption of four years' duration, which began as a vesicular eruption and continued an uninterrupted course except for occasional remissions. His past history was unimportant. The primary lesion consisted of a vesicle; these lesions appeared in crops, then broke down, leaving raw, scaly areas. There was marked thickening and fissuring of the skin. Routine Wassermann tests and cultures of the blood were negative. Six intravenous injections of mercurochrome-220 soluble and two transfusions of blood,

Davis treatment for four months, iron cacodylate, coagulin and tryparsamide were given without results. Cowpox virus is now being given with considerable benefit.

DISCUSSION

DR. J. F. BURGESS, Montreal: The arrangement of the lesion on the body, the absence of lesions in the mouth, the long duration of this illness and the lack of itching, I believe, indicate dermatitis herpetiformis.

DR. E. L. OLIVER, Boston: A specimen of blood was sent to Dr. Pels of Baltimore for examination and was reported as being positive pemphigus. There have been a great many large bullae present at various times. The present condition is of one and one-half years' duration. I thought at one time the patient would not live long. New bullae are developing almost every day, many large ones at times.

INTERN: We presented this case for a discussion of pemphigus and suggestions for treatment. When admitted to the hospital on October 21, the patient had an acute attack. This condition began three days after vaccination, following which no new vesicles appeared and the skin cleared a great deal; then about three weeks afterward, when the vesicles began to progress from the vaccination, a new crop of severe lesions appeared on the knees, abdomen, back, hands and arms. No reaction followed that vaccination, and last Friday, after a third attempt at vaccination with a new batch of vaccine, a slight reaction occurred.

POIKILODERMA VASCULARIS ATROPHICANS. Presented by DR. J. H. SWARTZ, Boston.

A white man, aged 40, an iron worker, first noted a discoloration on the lower extremities four months before presentation and now presents symmetrical areas of violaceous discoloration, scaling, and telangiectasia on the upper and lower extremities. There is a suggestion of atrophy in the early patches. Some of the lesions resemble a dermatitis due to chrysorabin, while others suggested radiodermatitis. Biopsy showed a definite change in the connective tissue of the corium, with infiltration of the round cells about the nerves and blood vessels. Intracellular and extracellular diplococci were present.

DISCUSSION

DR. J. H. SWARTZ: The interesting part of this case is the finding of both intracellular and extracellular organisms. I could not very well make out whether they were diplococci or protozoa, and I wondered whether there was any relationship between these organisms and the disease below the knee. In the same leg there are patches loaded with these organisms.

DR. E. P. MCCARTHY, Boston: I would suggest a vegetable microbe.

DR. L. W. KETRON, Baltimore: That is an important and significant observation. It would certainly make one feel that this case should come under the head of a low grade endocarditis with thrombi, and that these conditions in the skin are what are usually found in conditions of this kind. I should like to know whether the man shows any signs of a low grade endocarditis.

TUBERCULOSIS (?), MALIGNANCY (?). Presented by DR. M. TOLMAN, Boston.

A white woman, aged 70, presented a condition which began six months before presentation with a lesion over the inner third of the right clavicle. This lesion broke down and granular tissue formed, and despite all kinds of treatment it has not healed. A short time before that, a sinus appeared at the right elbow from which a slight amount of pus has drained almost continuously and has refused to heal. The treatment has been rather careless and intermittent. There was no history of cough, fever or loss of weight but considerable dyspnea; pain was present in both axillae for an indefinite period. Physical examination of the lungs showed many moist râles at both bases posteriorly and in both axillae. Slight increased dulness with harsh breath sounds was noted at the base of the right lung

and axilla. The blood pressure was 185 systolic and 105 diastolic. Abdominal examination revealed: (?) fluid wave; definite masses or tenderness. The extremities were normal. There was generalized arteriosclerosis. On admission, a redundant, granulomatous area the size of an English walnut was seen over the inner third of the right clavicle. The margins were free, and the surrounding skin was of a dusky erythematous nature but not indurated. Over the right elbow there was a small pustular lesion from which a slight amount of pus drained. On probing, no sinus was shown. The Wassermann and Hinton reactions were negative. Urinalysis gave negative results. The red blood count showed: 5,220,000 red blood cells; 11,450 white blood cells; hemoglobin, 75 per cent. A smear showed a slight achromia.

Roentgen Reports.—Oct. 22, 1930: The films of the shoulder joints showed motion. There was marked pulmonary change. It was suggested that another picture be made of the shoulder joint and chest. The olecranon showed two pea-sized areas of decreased density in the lateral view. The joint space was abnormal, and there appeared to be atrophy of the bone. The anterioposterior view was obscured by bandage and could not be interpreted.

October 29: The observations made in the previous roentgenograms were confirmed. There was evidence of destruction of old bone at the lower end of the ulna posterior to the joint. The cavity was smooth in outline, and there was some formation of new bone. No involvement of the joint or osteomyelitis were noted. The clavicle was grossly irregular at the junction of the middle and medial third. The irregularity was characterized by bone with a moth-eaten appearance. There was probably some formation of new bone. It was possible that a pathologic fracture might be present. There was no appreciable deformity. Examination of the chest showed the diaphragm high on both sides. The chest was deformed, probably due to kyphosis and lateral curvature of the vertebrae. The right lung was definitely abnormal. There was a round area of density about 3 cm. in diameter just below the clavicle, with fairly sharply defined margins. There was also an area of dulness, triangular in shape, in the right axillary line which extended to the diaphragm. The lung markings were grossly thickened and beaded. There was visible calcification in the trachea and the arch of the aorta. The appearance in the ulna and clavicle was consistent with an infectious process. Changes in the chest were rather suggestive of a malignant condition. It was possible that the change in clavicle might be due to malignancy with pathologic fracture. A film of the long bones, skull, pelvis and vertebrae was suggested.

November 5: Further examination of the bones showed diffuse decalcification with wedging of the upper dorsal vertebrae and bowing of the femora. The tibiae were not definitely bowed. There were no other areas of bony destruction. All the changes could be explained by senility and tuberculosis. The wedging of the dorsal vertebrae and bowing of the vertebrae were suggestive but not typical of osteomalacia.

DISCUSSION

DR. P. E. BECHET, New York: I think that this is a tuberculous rather than a malignant condition. There is a sinus on one of the lateral aspects, extremely indolent in appearance, and not what one would expect of an epithelioma. The sinus and lesion on one of the elbows are also in favor of tuberculosis.

DR. W. P. COUES, Brookline, Mass.: I noticed that the patient had a large movable gland on the right axilla. Clinically, the lesion seemed to me to favor a diagnosis of a malignant condition rather than of tuberculosis. Was a biopsy done?

HOUSE OFFICER: No.

DR. C. MORTON SMITH, Boston: The prevalence of lesions in that locality usually means a syphilitic origin. I do not mean to say that this is the case, but even with a negative Wassermann reaction I think everything is to be gained and nothing lost by trying antisyphilitic treatment.

KERATODERMA BLENNORRHAGICA. Presented by DR. J. G. DOWNING, Boston.

A white man, aged 41, presented an eruption which began on the palms and soles, and later became generalized over his body and extremities. He entered the hospital in March, and in April was presented at a meeting of the New England Dermatological Society. At that time he was emaciated, and had acute arthritis of the right hip, bronchial asthma, acute gonorrheal urethritis, prostatitis and keratoderma blennorrhagica, which was shown by marked hyperkeratosis of the palms and the soles and by the bullous lesions of his back, which later in the progress of the disease became hyperkeratotic. He had received all sorts of treatment including gonococcus antiserum. His condition steadily became worse, until July 2, when the seminal vesicles were removed. He had rather a stormy postoperative course for a few days, but the lesions of the skin started to clear up. He was then given large doses of gonococcus vaccine, and the condition continued to improve until September 3, when he was discharged from the hospital practically well. The condition of the skin previously showed marked hyperkeratotic lesions which started on the soles and then became generalized. Today he is well. Laboratory examination revealed a negative Wassermann reaction and positive smears for gonococcus. Biopsy showed hyperkeratosis. The patient was presented to show relief from symptoms by vesiculectomy and the administration of vaccine.

SCIRRHOUS HEMANGIOMAS. Presented by DR. J. G. DOWNING.

A white woman, aged 47, presented a dermatosis of ten years' duration, distributed on the neck and anterior surface of the face. It began with a small "pimple" under the chin; others appeared steadily. Examination showed a group of light brown nipple-like lesions about the size of a pea; several appeared on the medial line of the neck. The Wassermann reaction was negative. Biopsy showed scirrhous hemangiomas.

LICHEN PLANUS VERRUCOSUS (?). LICHENOID ECZEMA (?). Presented by DR. W. P. BOARDMAN, Boston.

A white woman, aged 58, gave a history of an eruption of nineteen years' duration on the lower part of the legs, starting on the right knee "like blisters," with itching. The itching continued, but was worse in winter. Little attention was paid to the lesions. A number of years ago, they began to assume their present aspect, and itching increased. During last year, pruritic lesions developed on the arms and hands. Intermittent pains were present with stiffness in both knees. There were recurrent aphthous sores of the mouth. On both thighs, the sacrum and the lower part of the legs, were numerous flat papular brownish-blue lesions varying in size from a pinhead to that of a pea and larger; some were distinctly angular. There was one linear lesion about 2 inches (5 cm.) long on the right thigh. A brownish-blue infiltrated plaque, sharply outlined and irregular in contour, was seen on the right knee. From the external malleolus, extending up about 5 inches (12.9 cm.) on the front and outer aspect of the leg were confluent nodular, warty lesions. Some similar discrete bluish-red lesions appeared on the fronts of both legs. Both arms and forearms showed numerous flat papular, scaly, sharply outlined lesions, with one large one on the dorsum of the right forearm. The buccal mucous membrane showed vesicular lesions on both sides. There was moderate enlargement of the thyroid gland. Biopsy from the verrucose lesion showed extreme hyperkeratosis and acanthosis with marked cellular infiltration of the corium. In the spring and fall, treatment with mercuric salicylarsenate and roentgen therapy (six one-half erythema doses) caused the lesions practically to clear up, except for the verrucose ones which became markedly flattened. The extensors of the upper part of the arms still showed excoriated papules. There was a slight scaling patch over the scapula, as well as sharply outlined, and red, scaling lesions in the anal fold (*Epidermophyton inguinale?*). Nodular, flat, shiny lesions were present on the back of the right hand and on both knees. Nodules over the right tibia persisted.

DISCUSSION

DR. C. M. WILLIAMS, New York: I think that this is a case of lichen planus verrucosa. There are no visible lesions of acute verrucosa, but probably, on the other hand, this might be a case of chronic lichen planus or chronic eczema which has become lichenified and which is much more widely distributed. The patient has a crop of lichenified papules, with itching, which is much worse in winter; the border is quite sharp.

TUBERCULOSIS OF THE TONGUE. Presented by DR. F. P. MCCARTHY, Boston.

A white man, aged 27, has had lesions on the tongue since April, 1929; the swelling involved the right margin and tip of the tongue, producing little discomfort. There was active pulmonary tuberculosis, and the sputum was positive for tubercule bacilli; there were also tuberculous cervical glands from which there was a discharge. The lesion on the tongue improved markedly and except for a superficial ulcer at the tip, was quiescent and healing. The right margin of the tongue showed a depressed scar with a serrated edge. A small superficial oval ulcer with slight edema and moderate redness was seen on the tip of the tongue. The Wassermann reaction was negative. Biopsy on April 25, 1929, showed epithelioid cellular infiltration with perivascular infiltration of the lymphoid and plasma cells. Several giant cells with few atypical miliary tubercles were noted. The following treatment was given: Six doses of neoarsphenamine in April, 1929; therapy with a water-cooled ultraviolet lamp; constitutional treatment with subsequent care in a sanitarium, and recently one treatment with an electrodesiccation current.

DISCUSSION

DR. F. P. MCCARTHY: I presented this case primarily under the prognosis of tuberculosis of the tongue for the various forms of treatment that might be applied. In the literature we have cases in which the lesion has been excised with good results, and the patient returns to normal. In others, electrodesiccation or electrocoagulation was used, and in others, ultraviolet or Kromayer lamp. This is the second patient with tuberculosis of the tongue that I have treated within the last three years. In the other cases there was a prompt response to electrodesiccation. In this case there has been a response to therapy with the ultraviolet rays. The pulmonary lesions in both of these cases were relatively mild. The probable history in these cases is an inoculation process, a result of trauma, usually a bite. But I believe that this treatment of these types of tuberculosis of the tongue is far more favorable than a reading of textbooks leads one to infer.

URTICARIA WITH PIGMENTATION: DERMATOGRAPHIA. Presented by DR. F. P. MCCARTHY.

A white man, aged 52, showed generalized pigmented macular rash of fifteen years' duration. The older lesions were dark brown while the more recent ones were of a port wine color. The lesions were more pronounced and confluent at the beltline. Marked dermatographia was present. The laboratory examination showed: hemoglobin, 100 per cent; red blood cells, 6,950,000; platelets, 328,000; Wassermann test, negative; bleeding time, normal; coagulation time, normal; blood sugar, 94 mg. per hundred cubic centimeters; nonprotein nitrogen, 47 mg. per hundred cubic centimeters; feces, negative for occult blood; differential count, polymorphonuclears, 82 per cent; large lymphocytes, 4 per cent; small lymphocytes, 10 per cent; eosinophils, 4 per cent. A section obtained at biopsy was shown.

DISCUSSION

DR. R. L. SUTTON, Kansas City: This is a particularly interesting case because four or five years ago a prominent dermatologist, in talking to me about psoriasis, said that in the most severe cases one generally found diseases of the gallbladder and that this occurred in about 99 of 100 cases. Recently however, by

study of a series of cases it was found that people of the patient's type have a great disposition toward the development of chronic cutaneous inflammatory processes.

DR. J. F. FRASER, New York: Dr. Sutton, were you discussing the previous case?

DR. SUTTON: Yes.

DR. FRASER: I rather disagree with the diagnosis of pigmentation following urticaria as presented in this case. I classify it as a rather typical case of so-called adult urticaria pigmentosa. The dermatographia is not marked at all. That is one of the features of urticaria. The color is peculiar, and the macular lesions, with the history of the case, and the fact that it was a nonitching condition, all favor a diagnosis of urticaria pigmentosa rather than urticaria with pigmentation.

DR. F. P. MCCARTHY: This case was shown a number of years ago before the New England Dermatological Society with a diagnosis of urticaria pigmentosa. The reason for the change in the diagnosis is the change in the opinion prevailing throughout the medical profession in relation to these cases in adults. More often these cases are being called urticaria with pigmentation irrespective of symptoms, and correct diagnosis tends to prove that urticaria pigmentosa begins in childhood. The microscopic picture does not show the mast cells, nor has it been stained for different types of pigmentation. The microscopic pictures of the cellular changes and the distribution are consistent with urticaria pigmentosa. The question whether to call it urticaria with pigmentation or to call it urticaria pigmentosa is a much discussed one. The patient also has psoriasis, which is interesting. He also shows the dermatographia which goes with both these types of cases. Dr. Sutton brought up a very important point in this case relative to chronic infection. This man has symptoms of a chronic disease of the gallbladder, and may not this type of skin reaction be a manifestation of chronic infection? He also has shown on occasions an afternoon temperature which suggests a chronic infection.

RAYNAUD'S DISEASE (POSSIBLY DUE TO CHRONIC ARSENICAL POISONING). Presented by DR. F. P. MCCARTHY.

A white man, aged 32 years, an auto mechanic, stated that he had used ethyl gasoline (tetra ethyl of lead) for two years before the onset of the condition. Two years ago the fingers became numb, cyanotic and aggravated by cold. One year later the feet showed symptoms and changes. Later, "numbness" developed in the legs and arms with "rheumatic pains." The legs felt "paralyzed" after walking. The condition had grown progressively worse and the patient was unable to work. The extremities were livid and cyanotic. The finger-nails were thin and atrophic with linear markings. Laboratory examination showed: leukocytes, 9,000; erythrocytes, 4,950,000; hemoglobin, 90 per cent; differential count, 71 per cent polymorphonuclears, 6 per cent large monocytes, 22 per cent lymphocytes, 1 per cent eosinophils; Wassermann test, negative; blood sugar, 76 mg. per hundred cubic centimeters; nonprotein nitrogen, 35 mg. per hundred cubic centimeters; urine, 0.02 mg. of arsenic in 2,000 cubic centimeters and no lead.

DISCUSSION

DR. E. L. OLIVER, Boston: This case interested me a good deal, because we had a patient in even worse condition who had ulceration of the finger-tips, a condition sometimes seen in these blue-black hands. We consulted the surgical department and decided to cut the sympathetic nerve; complete relief from all symptoms resulted. The hands appear normal today, and there is no pain, whereas before it was excruciating. The cure is complete, and it is predicted that the patient will remain cured.

DR. H. P. TOWLE, Boston: May I ask if ethyl gas was considered in this case?

DR. F. P. MCCARTHY: Yes, but only in relationship to the lead content. The patient handled various cleansing fluids in his occupation, and the probability of exposure offers an explanation. Urinalysis showed a very small amount of arsenic. Recently, a case was reported in which three times the amount found in this man was present; thiosulphate was given with marked improvement. I presented this case with the suggestion that arsenic may be a factor, and I also await suggestions for treatment. Sympathectomy will be tried later, if the condition does not respond to thiosulphate.

DR. TOWLE: How would arsenic be a factor if the disturbance were vasomotor?

DR. F. P. MCCARTHY: I can explain it only by the fact that vasomotor reaction in kindred infections has caused intense disturbances, and in this enlightened day the finding of one case in which arsenic is apparently the cause may indicate that arsenic may be responsible for it. We do know that arsenic produces a comparative neuritis; we do not note the poisoning at once, but it is present in some cases of arteriosclerosis. It may have some relation in this case.

DR. G. ARCHAMBAULT, Montreal: In questioning this patient and in considering the number of men employed in garages and the motor mechanics who use ethyl gasoline, it struck me that surely if that is a factor in the etiology, one would see more of these cases. I thought it might be stretching the imagination a little to consider ethyl gas as a cause.

DERMATITIS VENENATA OR DERMATITIS FACTITIA (NOVEL METHOD OF REMOVING TATTOO MARK). Presented by DR. WALTER T. GARFIELD, Boston.

A white woman, aged 31, had an eagle tattooed on the upper part of her left arm. She was seen on Sept. 23, 1930, at which time she gave the following history: Two weeks before she had applied a paste made of "Kleenall" and water several times. When first seen, she showed a thick blackened dry crust which had shrunken away from the edge, leaving a clean granulating surface. The edges of the crust were loosening, and pus was coming out from under the edges. On October 14, the crust came off leaving a clean granulating ulcer. Since that time there has been considerable growth of epithelium on the edges.

DISCUSSION

DR. E. J. TROW, Toronto: The lesions of the skin suggested to me the possible occurrence of factitia.

DR. W. T. GARFIELD: The patient caused the lesions herself; she did it to remove the tattoo mark. I saw the lesion soon after this treatment had been applied, and there was a tanned piece of skin attached to it; on lifting off the crust on the edges, I saw pus, probably caused by the sloughing of the tissues, exuding from this crust. A short time ago, this dry hard skin came off, and I fully intended to bring that piece with me. If held to the light one could see the pigment which marked out the eagle still in that piece of skin. I think the patient is going to get a good result with a smooth scar. It was her own idea.

LICHEN SCLEROSUS ET ATROPHICUS. Presented by DR. WALTER T. GARFIELD.

A white man, aged 65, a janitor, was first seen on Jan. 9, 1930, at which time he gave the following history: For two months prior to presentation he had itching of the scalp with some loss of hair. He has used resinol, tar soap and petrolatum. He was given an ointment containing 15 grains (0.972 Gm.) of salicylic acid, 20 grains (1.3 Gm.) of sulphur precipitate, and 1 ounce (56.7 Gm.) of petrolatum. The acuteness subsided during treatment, as indicated by the lack of inflammatory papules and subsidence of itching. There was loss of hair on the top of the head, with atrophy of the scalp; also many pink to reddish papules, especially at the periphery of the atrophic area, and many black hard horny dots

scattered throughout the atrophic area which look as though the follicles were filled with the same foreign body.

A biopsy was done on May 8, 1930. The report showed chronic inflammation with some keratinization, but no evidence of malignancy.

DISCUSSION

DR. M. J. STRAUSS, New Haven, Conn.: The lesion does not look like lichen. I offer folliculitis decalvans as a suggested diagnosis.

DR. H. H. WHITEHOUSE, New York: The pores that are atrophied now distinctly show involvement by folliculitis decalvans. The alopecia is characteristic of that condition. It does not appear to me that the diagnosis can be lichen sclerosus et atrophicus.

DR. W. T. GARFIELD: When I first saw the lesions they were lichenoid in character. Those have all cleared up, and there are no inflammatory lesions at present. There were at that time, and it showed in the biopsy, definite keratoses of the follicles. When we first saw this case there was considerable discussion whether those horny points were really keloid or whether they were coal dust, the patient being a coal heaver. We tried to wash them off and were unsuccessful, and on biopsy they showed definite keratinization.

LUPUS ERYTHEMATOSUS WITH BULLAE. Presented by DR. JOHN G. DOWNING, Boston.

A colored man, aged 38 years, presented a condition of seven years' duration, distributed about the face, ears and scalp and a few healed lesions on the body, also on the conjunctiva of the right eye, on the mouth, tongue, cheeks, elbows and hands. This condition started in 1923 in the scalp and spread to the ears and nose. Examination of the previous history showed that a similar condition occurred on Jan. 31, 1927. The patient stated that these "water blisters" appeared intermittently in crops.

When first seen, the patient showed symmetrical lesions on the scalp, both sides of the nose and ears, with definite areas of atrophy, erythema and stippling; that is, he showed typical lesions of lupus erythematosus. In addition to this, around the finger-nails were definite hemorrhagic bullae, and similar bullae over the elbows and hands. The conjunctiva of the left eye was swollen and edematous, and showed what appeared to be small vesicles accompanied by excessive lacrimation. In the mouth were numerous bullae and vesicles. Over the entire body were bullae of various sizes, not grouped but occurring singly, some hemorrhagic and others containing clear serum.

A roentgenogram of the chest showed somewhat increased markings in the upper lobes of both lungs. Roentgenograms of the gastro-intestinal tract following a barium meal were negative. Gastro-intestinal studies, roentgenograms of the chest, blood cultures, repeated Kahn tests, cultures and smears from the lesions of the skin were negative. The Graham test for a pathologic process in the gallbladder was positive but in the absence of acute symptoms in the presence of the lesions of the skin, operation was not advisable.

The patient was treated for ulcerations of the throat with 60,000 units of diphtheria antitoxin; cultures were positive for Klebs-Löffler bacilli. A special vitamin diet, Sippy diet, numerous external and internal medications, physical therapy and mercurochrome-220 soluble gold sodium thiosulphate and arsphenamine intravenously have been tried with varied results.

DISCUSSION

DR. J. H. SWARTZ, Boston: At a previous meeting of the New England Dermatological Society, I told of a case of lupus erythematosus in which nineteen injections of a gold compound were given and an aplastic anemic picture developed. This set me to thinking, and I began a study of some cases in which a gold

preparation was not used. I found, particularly in the disseminative type, a picture similar to those cases in which this therapy was used, that is, a definite leukopyemia and an increase of large mast cells. Whether the toxic features act on the bone marrow in lupus erythematosus is a question I am bringing up for study. I wonder if any other men have noticed the development of aplastic anemia following administration of gold compounds and the sulphate.

LOCALIZED GROUP OF ENLARGED SEBACEOUS GLANDS. Presented by DR. JOHN G. DOWNING.

A white girl, aged 17, presented a history of having a pimple on the chin five years before presentation which spread to its present size, but did not itch. On the point of the chin there was a yellowish pink area 1.5 cm. in diameter, covered with pinhead, comedone-like plugs. The whole area was somewhat infiltrated and elevated. Pathologic diagnosis on Oct. 25, 1930, showed numerous sebaceous glands with no evidence of malignancy or of tuberculosis.

DIFFUSE GENERALIZED SYMMETRICAL SCLERODERMA (TWO CASES). Presented by DR. E. LAWRENCE OLIVER, Boston.

CASE 1.—The patient was a white boy, aged 4 years, of Italian American parentage. According to the child's mother, one and one-half years before presentation the skin began to get hard, especially on the cheeks, and this gradually spread becoming much worse since the child had scarlet fever. The boy was seen six months before presentation at which time the skin was very hard and firm all over the body, most marked on the cheeks, face, arms and legs and less marked on the trunk. There was no pitting on pressure. Biopsy showed some cellular infiltration around the blood vessels in the skin with some thickening of the corium. Tests of the blood and urine gave negative results. The basal metabolic rate was plus 18. No treatment was given except hygienic measures and proper feeding. The child was seen on August 30, 1930, and showed marked improvement.

CASE 2.—A white girl, aged 3½ years, presented a condition of four months' duration. She had measles in March, 1930, injury to the head in July, 1929, and has had a tendency to eczema all her life, especially in infancy. Otherwise, the history was unimportant. She was seen at the Children's Hospital about six weeks before presentation, when the skin was generally firm and swollen. This condition was most marked on the face and upper extremities, but was all over the body. The face and arms were also somewhat eczematous with some excoriations from scratching, and some pitting of the ankles. She was seen again on Nov. 5, 1930, when the condition was slightly improved. Biopsy was refused. On Oct. 19, 1930, the hemoglobin was 65 per cent. The blood count showed 4,219,000 red blood cells, 11,650 white blood cells. There was 10.6 mg. of calcium in the blood. On October, 20, the urine was normal and the Wassermann reaction negative. On October 19, the tuberculin test with R A 1:1,000 was negative. No treatment has been given. The condition has changed little during the last few weeks.

DISCUSSION

DR. E. L. OLIVER: I saw the boy six months ago, and all his skin was hard and thickened. The condition had been present then for over a year and had grown much worse after scarlet fever; the mother insisted that it had been present before the scarlet fever. The condition cleared up almost entirely without any treatment, so far as I know.

The little girl has had the condition about six months, I think. It developed about four months after measles, and has not changed since I saw it about a month ago. The skin everywhere is thickened, infiltrated and firm. In a case that I presented seven years ago before this Society the condition lasted about a year and cleared up entirely. In this instance, it developed after a severe sore

throat in the glands of the neck which lasted a month. A doctor said that it would clear up in about a year. I do not think that we know anything about the etiology.

DR. L. W. KETRON, Baltimore: Recently four or five cases of generalized scleroderma were reported in which blood sugar was present. I think it would be well to test for blood sugar, because we do not know when we may find some factor that would be of value in determining the etiology.

DR. E. L. OLIVER, Boston: The blood sugar was practically normal in both these cases.

DR. TOWLE: Why not test for chlorides to see if there is any heavy metal present? If there is arsenic in scleroderma, it ought to be proved.

MELANOTIC SARCOMA. Presented by DR. E. P. DISBROW, Worcester, Mass.

A white man, aged 43, weighing 141½ pounds (64.2 Kg.), came under observation in January, 1928. He stated that a year previously he noticed a linear abrasion on the right sole near the base of the little toe, caused by a small nail in his shoe. Soon after a small "blood blister" appeared in the traumatized area. It continued to grow and was very painful. Nonsurgical measures gave no relief. No other abnormality was noted. The history was unimportant. The patient's habits were good.

Examination revealed a round, moist, blackish lesion, 2 cm. in diameter on the right sole, sharply defined and barely elevated above the surrounding tissue. The lesion was excised in March, 1928. The pathologist reported melanotic sarcoma. The wound healed in six weeks. Eight weeks later there were recurrences near the scar with enlargement of the femoral lymph nodes. In July, 1928, partial amputation of the foot and excision of the glands was done. A third operation was done in November, 1928, for recurrence in the scar. A few days later about a dozen small, round, bluish lesions appeared on the anterior part of the thigh. In December, 1929, the patient had a severe attack of erysipelas involving the whole right lower extremity. A second attack occurred the following month. Since then, new tumors have continued to appear on the foot and thigh. Several in the latter region have been excised by the high frequency current. The patient's general health has been fairly good, and he has done light work occasionally.

Sixteen urinalyses, including microscopic examination, gave negative results with three exceptions (one showed a trace of albumin and two showed sugar and diacetic acid).

Three tests for melanin have been made since 1928, the last on Oct. 29, 1930; all gave negative results. The renal function on Feb. 28, 1928, as shown by the first specimen, 340 cc., was 30 per cent, and by the second specimen of 300 cc., 30 per cent.

On Feb. 28, and Dec. 10, 1928, the Wassermann and Kahn reactions of the blood were negative. The blood count on Oct. 19, 1930, showed: white blood cells, 7,700; red blood cells, 4,970,000; hemoglobin, 85 per cent; polymorphonuclears, 42 per cent; mononuclears, 5 per cent; lymphocytes, 46 per cent; basophils, 1 per cent; eosinophils, 6 per cent. The red count was normal in size, shape and hemoglobin content. The platelets appeared normal. Bence-Jones protein was negative. Chemical examination of the blood on March 2, 1928, showed: alkaline residue, 58.2 mg. per hundred cubic centimeters; sugar, 0.11 Gm.; nonprotein nitrogen, 34.9 Gm.; urea nitrogen, 16 Gm., and creatine, 1.8 Gm. On Aug. 12, 1928, the analysis showed: alkaline residue, 53.5 mg. per hundred cubic centimeters; sugar, 0.11 Gm.; nonprotein nitrogen, 32.3 Gm.; urea nitrogen, 15 Gm., and creatinine, 1.5 Gm. On Oct. 19, 1930, the analysis showed: sugar, 0.11 Gm., and nonprotein nitrogen, 31.6 Gm. per hundred cubic centimeters.

On Oct. 21, 1930, roentgen examination of all of the bones was negative except the right ischium, which showed a little erosion on the inferior border. This does not justify a definite diagnosis of metastases. The chest was also normal.

The blood pressure was 130 systolic and 80 diastolic. In March, 1928, the weight was 141½ pounds (64.2 Kg.); in February, 1930, 163½ pounds (74.2 Kg.) and in October, 1930, 157½ pounds (71.4 Kg.).

The following procedures were carried out: excision of the primary lesion; partial amputation of the right foot; excision for recurrences in the scar and glands and excision of the metastatic tumor on the thigh.

DISCUSSION

DR. C. M. WILLIAMS, New York: This is an exceedingly interesting case because by all ordinary rules this man ought to have been dead two years ago. I found one interesting point which I did not see recorded. The disease apparently began sometime in 1928, and it was spreading rapidly up to December, 1928, when a severe attack of erysipelas occurred, followed by a rapid recurrence of the lesions; another attack of erysipelas occurred in January, 1929, and again rapidly increasing lesions appeared; since that time the disease has been almost stationary, a few new lesions being seen occasionally. We have a history of an onset followed by two severe attacks of erysipelas, and then the disease apparently comparatively ceased. That is exceedingly curious and suggests the well known treatment with antitoxin serum. It is certainly interesting to note that the development of some kind of bacterial toxin in that man's system is coincident with the appearance of the lesions and with the previously rapid progress of the disease. I have no explanation whatever, simply an observation which I think is worth recording.

DR. E. L. OLIVER, Boston: I should like to speak of a case which I did not see but heard of, that of a girl about 18 or 19 years old, with multiple melanotic lesions. A biopsy was done by two pathologists and both agreed on an undoubted diagnosis of melanotic sarcoma. They told the father of the girl that treatment might help lengthen life, but they could promise nothing. The father asked how long the girl would live and was told about two years. The girl came back in two years with not a trace of a lesion on the arm. How often a spontaneous cure results, I do not know.

DR. C. G. LANE, Boston: Two striking things occurred to me in this case. One was the story, if true, that there were no lesions before the injury. I do not know that we could say absolutely that there was no preceding lesion, but the history I got was of a minor accident and then the black initial lesion soon developed. The second striking thing is that it has been stationary after two rather severe attacks of erysipelas.

DERMATITIS HERPETIFORMIS. Presented by DR. J. H. SWARTZ, Boston.

A white girl, aged 18, fifteen months before presentation had a "sunburn" which nearly disappeared, but a few blisters remained and itched severely. It has never cleared up, despite treatments prescribed by doctors. Examination revealed a group of lesions on the back and chest, especially over the breasts, where areas of pigmentation (brownish) remain on the site of a former eruption. There was a cupped lesion the size of a twenty-five cent piece on the left cheek, with a traumatic scar on the left elbow; otherwise the elbows, knees, buttocks were free. There are similar groups of lesions in the axillae. There are several lesions on the scalp.

DISCUSSION

DR. TRAUB, New York: In this case I thought of two possible diagnoses: pemphigus of a relatively benign type described by Senear, and possibly lupus erythematosus. The history is that the onset followed exposure to sunburn and that the eruption first developed on the back, chest and breast and another lesion on the exposed part of the face. The lesions present today are those that we have seen in one or two instances in the type of disease that Senear described as being a relatively benign type of pemphigus, and I would suggest that as the first possibility.

MERCUROCHROME DERMATITIS. Presented by DR. C. GUY LANE, Boston.

A white boy, aged 6 years, had severe burns involving the left side of his face when 1 year of age. Ever since then, the left ear has been discharging. Seven days before presentation, a simple mastoidectomy was performed in hopes of stopping the chronic discharge. The operative field was prepared by scrubbing with soap and 70 per cent alcohol containing 0.2 per cent phenol as an adulterant, and painting it with compound of mercurochrome, 5 per cent; acetone, 10 per cent and alcohol, 50 per cent. Two days later an erythematous vesicular eruption developed, with bullous formation in a few places. This was sharply limited to the area of skin prepared for operation.

The skin of the left arm was prepared the same way and showed a similar eruption two days later. The skin of the other arm was prepared in the following ways: (1) an area the size of a quarter was painted with 5 per cent mercurochrome, aqueous solution; (2) a similar area was painted with 10 per cent acetone; (3) a similar area was scrubbed with 70 per cent alcohol (adulterated); (4) a similar area was scrubbed with pure 70 per cent alcohol; (5) a similar area was scrubbed with 0.2 per cent phenol. Two days later a slight vesicular eruption appeared in the area painted with mercurochrome. There was no reaction on the other areas.

DISCUSSION

DR. LEON GINSBERG, Washington: I should like to have it put on record that we have never seen a case of dermatitis due to mercurochrome.

NEVUS FIBRO-ANGIOMATOUS (ADENOMA SEBACEUM PRINGLE). Presented by DR. FRANCESCO RONCHESE, Providence, R. I.

A white boy, aged 14, who had had mild epileptiform seizures since the age of 4, presented pinhead-sized, yellowish and reddish papules, symmetrical capillary telangiectasia, located principally on the side of the nose and spreading over the cheeks, nose, forehead and chin. The family history was unimportant. The tuberculin and Wassermann reactions were negative. Chemical analysis of the blood was negative. The blood count revealed: red blood cells, 5,926,000; white blood cells, 10,800; hemoglobin, 73 per cent; polymorphonuclears, 45 per cent; small lymphocytes, 41 per cent; large lymphocytes, 4 per cent; eosinophils, 3 per cent; endothelial cells, 7 per cent. Biopsy showed hypertrophy of the sebaceous glands and dilatation of the blood vessels (section submitted).

DISCUSSION

DR. L. W. KETRON, Baltimore: With reference to that case I should like to mention the case of a girl with a similar condition on the chin. It seems to me we ought to have a name for such conditions. What are you going to call a group of lesions which symptomatically would come under the heading of nevus? Many of us have seen cases made up of sebaceous glands such as were seen in this section, and we ought to have some classification for them. Take the senile sebaceous glands, those little multiple hypertrophies that are seen in the sebaceous glands. We should have some definite classification for this type of lesion.

HEMANGIO-ENDOTHELIOMA. Presented by DR. A. M. GREENWOOD, Boston.

A white man, aged 64, had a "wart" removed from the left hand twelve years before presentation. Another appeared shortly after and was removed. A year later the back of the hand became stiff and the skin firm and hard. The process gradually spread. For from five to six years the process spread up the arm. Purplish "warts" appeared on the other hand. One year before presentation, the color became purplish and dusky. Nine or ten months before, there was involvement of the right hand and the feet. The man had not worked for four years.

At presentation, the left hand was swollen and purplish. The skin, especially on the palm, was greatly thickened. The right hand was also swollen with much

thickening of the palmar skin, and the flexor surfaces of the arms, legs and feet. There were irregularly shaped areas, hard, purplish, and sometimes slightly elevated.

On March 21, 1930, the Hinton test was negative. On March 20, the blood sugar was 95 mg. Urinalysis on August 6, showed no albumin or sugar. A blood count on August 1, showed 3,680 red blood cells, 5,800 white blood cells and 70 per cent hemoglobin. A roentgenogram showed irregular areas of destruction in the left radius apparently just beneath the periosteum but it did not extend through the cortex. The bones of the left hand were less dense than the right. There was some irregularity of trabeculation.

GRANULOMA INGUINALE. Presented by DR. J. H. SWARTZ, Boston.

A white woman, aged 55, had had a painless lump in the right thigh for three months. About one week before presentation this became discolored, and two days later crusted. On the upper inner aspect of the right thigh, there was a circumscribed rather insensitive subcutaneous firm swelling. The skin was dark red and peeled from the center outward. The center showed a blackish-brown crust. There was no inguinal adenitis. The Wassermann reaction was negative. Cultures revealed *Staphylococcus albus,* diphtheroids and organisms which were morphologically typical of *B. ducrey.* Biopsy revealed a papilloma showing a typical proliferation of the epithelium. The patient was given twenty-two treatments of antimony potassium tartrate (tartar emetic) with marked improvement, following which jaundice developed.

DISCUSSION

DR. J. H. SWARTZ: I presented this case particularly because of the question of diagnosis. I have looked up the literature but could only find one or two cases of jaundice following this type of treatment.

PSORIASIS. Presented by DR. J. H. SWARTZ.

A white woman, aged 21, had a red, scaling eruption of the palms and soles two years before presentation. This soon involved the entire body. It lasted four months and entirely cleared, except for the palms and soles. The lesions on the palms and soles persisted until October, 1929, when the eruption again became generalized. In the early part of October, her joints were painful, swollen and red, particularly the toe of the right foot, later the left ankle, and then all the fingers and toes, the ankles, knees, wrists, elbows and neck. These joints continued to remain swollen, tender and painful on motion for the next six months. Examination showed a diffuse, scaling papular rash involving the entire body, including the palms, soles and scalp. There were also confluent patches over the lower part of the spine and over both iliac crests. The papules were less numerous over the abdomen and very sparse over the legs.

The urine was normal except for a slight trace of sugar, and at times a very marked positive sugar test. The blood count showed: red blood cells, 4,120,000; hemoglobin, 75 per cent; white blood cells, 7,500; polymorphonuclears, 63 per cent; lymphocytes, 29 per cent; eosinophils, 4 per cent; monocytes, 4 per cent. The basal metabolic rate was —21. The sugar tolerance curve was that of a person with mild diabetes. Examination of the stool gave negative results.

The patient received little in the way of beneficial results from the usual forms of treatment. The large doses of salicylates and other therapeutic agents were without effect. For a time, the patient was kept on a diabetic diet which contained 200 Gm. of carbohydrates, 70 Gm. of proteins, and 100 Gm. of fat. She was finally given seven doses of ortho-iodoxy-benzoic acid. This was given in doses of 1 Gm. intravenously; following each injection, the patient experienced considerable relief from her symptoms, so that by the time she was discharged from the hospital, she was able to move her joints with greater ease and less dis-

comfort than at almost any time during her stay. Following discharge from the hospital, she continued to receive ortho-iodoxy-benzoic acid, in doses of 1 Gm. by mouth twice a week. This was continued for a period of approximately three months. Under this therapy not only the condition of the joints completely cleared but likewise that of the skin. The only evidence of any previous disease of the skin is that seen in the palms. The diet has been normal for the past four months, and the urine has never shown sugar at any time.

DISCUSSION

DR. J. H. SWARTZ: I presented this case simply as one showing another possible treatment for psoriasis. This patient was given injections of amidoxyl for arthritis, and coincident with the clearing up of the arthritis, the psoriasis disappeared. I wondered if anybody else had tried this treatment. If not, I think it is well worth trying.

YEAST INFECTION. Presented by DR. J. H. SWARTZ.

A white woman, aged 47, two years before presentation noted white spots on the tongue and small blisters on the lips, which gradually became worse and at the present time involve the tongue and extend into the throat. Nine years before presentation, the patient had anemia. She obtained relief for the last six years by taking liver. Examination of the tongue revealed it to be red, swollen and studded with whitish spots. Laboratory examination revealed yeastlike organisms, which were cultivated. The hemoglobin varied from 55 to 60 per cent. There were 4,150,000 red blood cells and 11,950 white blood cells. Moderate achromia was noted.

DISCUSSION

DR. E. F. TRAUB, New York: Were those organisms found by microscopic examination?

DR. W. T. GARFIELD, Boston: The yeastlike organisms were found.

DR. TRAUB: This patient has no indications of primary or secondary syphilis, but this is not uncommon in such cases. I wondered if the condition was not partly due to the anemia which is shown in the history.

DR. F. P. MCCARTHY, Boston: The patient gave a clear history of a vesicular eruption on the lips and tongue. I believe that in this case if yeast is a factor it is purely a secondary incidence and that the condition of the tongue indicates a chronic anemia.

DR. J. H. SWARTZ: This case was presented as primarily anemia and a secondary suggestion of yeast infection.

EPIDERMOLYSIS BULLOSA. Presented by DR. E. LAWRENCE OLIVER, Boston.

A white boy, aged 3 years, presented generalized dermatosis especially on the face, hands and feet, which had been present intermittently since two days after birth. The child was first admitted to the hospital in September, 1927. Since then he had been brought in regularly for treatment, but new lesions have continued to develop from time to time. In December, 1929, the child had pneumonia. He had five sisters who were well, and there was no hereditary tendency.

On admission to the hospital the face, hands and feet showed many eroded areas with a large bulla on the left foot. There was no big toe-nail. Many erosions were present in the mouth. On February, 1928, a new crop of vesicles developed. The nails on some of the toes were gone. The child had had periods of entire freedom from the eruption, sometimes as long as three months, but new outbreaks had continued. On Jan. 30, 1930, the basal metabolic rate was plus 10. The Wassermann reaction of the child and also of the mother was negative. Dark-field examination gave negative results. Ointments were of no value in treatment.

Ultraviolet light was given with some benefit. A solution of potassium arsenite was of no apparent help. Viosterol instead of cod liver oil was prescribed in the Children's Department. In February, 1930, carbon arc therapy was instituted, and since then, the child has been getting along fine.

BOWEN'S DISEASE (?); CARCINOMA SECONDARY TO ARSENICAL KERATOSIS. Presented by DR. E. LAWRENCE OLIVER.

A white man, aged 78, had had a condition of the right breast, back and thighs, and right ear, off and on for thirty years, which started inside the right nipple and had almost entirely healed at times. For past year it had grown progressively worse. The patient gave a history of having taken tonic in the form of drops at various periods throughout his life. A large papulovesicular patch, with a pearly border, involved almost the entire right breast; the right nipple was gone. There was deep ulceration below the area of the nipple, and a more superficial one just to left of this. It had a serpiginous outline, and bled some. There was another area with a healing center and several small papular lesions above it. Several lesions were noted on the back and a few on the thighs.

The microscopic changes did not correspond to the description of Bowen's disease, but the lesion was interpreted as a precancerous dermatitis.

Roentgen treatment was given in the following dosage: 4 skin units unfiltered to the borders of the large lesion and 5 skin units to the central part. The lesions showed marked improvement following the treatment.

DISCUSSION

DR. C. M. WILLIAMS, New York: In that case the right breast was very much shrunken, while the left was normal, full and well developed. I did not see any nipple on the right side, and the breast was distinctly shrunken. The man assured me that there had been no operation on that side although there was a distinct line which looked as if there had been an incision. He said he had had nothing but roentgen treatment, but it looked to me like a neoplastic process that had shrunken under the influence of the x-rays.

LYMPHANGIOMA CIRCUMSCRIPTUM (?). Presented by DR. J. HARPER BLAISDELL, Boston.

A white woman, aged 65, presented a condition of four years' duration. A few days after the extraction of two lower teeth, both lips and the tongue began to swell. Four more teeth were removed two weeks later, four more one week later, and then the remainder were removed during the following two weeks. The tongue remained swollen for a number of weeks, but cleared up entirely, leaving the lips and hard palate as the permanent site of the trouble. Nine roentgen treatments were given at this time and local applications of various sorts were continued until June, 1930, when six more roentgen treatments were given. The process varied a little in intensity from time to time and was worse during the summer or when the patient was near heat. At no time was there any essential change in the process. Both lips were enlarged and covered with a lobulated, pleated mass of reddish tumors varying in size from that of a pinhead to that of a pea. The hard palate had a raised, red, velvety appearance with a somewhat similar nodular appearance in the middle near the uvula. On the inside of the lower lip were one or two discrete tumors that appeared rather cystic. In the morning there was usually considerable secretion, and the lips were apt to be stuck together. Laboratory examination showed papilloma with chronic inflammation.

DISCUSSION

DR. E. F. TRAUB, New York: This is one of the most interesting cases presented this afternoon. I wondered if the diagnosis was definitely established, and whether tuberculosis had been positively ruled out.

DR. J. H. BLAISDELL: The diagnosis was filled in, as per instructions not to present cases without a diagnosis. Dr. Lane can tell us about the slide which was also shown with this case.

DR. C. G. LANE, Boston: This case was shown at a recent meeting of the New England Dermatological Society, and there was quite a difference of opinion in regard to it. It was brought in here with the idea of creating some discussion among the outside men, and I should like to have an expression of opinion from them. The section taken from the left side of the lip showed no evidence of tuberculosis. Dr. Greenwood can give the details of that better than I can, but it was more of a chronic inflammatory process, rather than evidence of a tuberculous condition. It is interesting to see the two types here, the lesions on the lips and the lesions on the hard palate. I should personally like to hear the opinion of the men from outside of Boston who have seen this case today.

DR. M. J. STRAUSS: There was a case presented before the Connecticut Medical Association with the same conditions as this, and I believe that the pathologic report was papilloma. There were no lesions on the hard palate in that case, but the lesions on the lips were the same. I cannot explain the lesion on the chin as having anything to do with the other lesions.

DR. L. W. KETRON, Baltimore: I do not seen any particular evidence that the condition is lymphangioma. The dilated lymph vessels that one usually sees are not present. While I cannot venture a diagnosis, the lesion looks like a papilloma-granuloma. One cannot say that it is not tuberculous because there is not the usual formation of ulcers. It is generally recognized that whether one ulceration is tuberculous depends on the age of the lesion, the slowness with which it forms and also on the number of active organisms. The condition is chronic and inflammatory, and there are large masses of plasma cells. The histologic picture does not suggest lymphangioma. The condition certainly is some form of chronic granuloma, if not papilloma. It looks like a secondary papillomatous change superimposed on some granulomatous condition.

DR. E. F. TRAUB: I should like to say a word about the use of the word papilloma. It means nothing. This condition is something more than granuloma, and I think tuberculosis should be definitely ruled out as the most probable diagnosis.

DR. J. H. BLAISDELL: As to the pathologic diagnosis, I think the condition conforms especially to a chronic inflammatory process; but I should like to hear discussion as to the possibility of a diagnosis of tuberculosis from the standpoint of the duration or progress these lesions have made. According to the woman's story the duration is four years without any essential change. The process began following the extraction of the teeth, and the patient states that this whole condition developed within a period of a few weeks and that the lesions have remained essentially the same for four years. It would seem as if a tuberculous process ought to do more than remain stationary, and that there would be some ulceration. The patient does say, however, that her lips are often stuck together in the mornings with some mucous discharge. I tried one or two electrocoagulations, and it seemed to me that as the current removed these small elevations they were very soft and there was some mucous discharge. The lesions have practically disappeared under treatment.

VINCENT'S ANGINA; THRUSH; FUNGUS INFECTION OF NAILS. Presented by DR. M. TOLMAN.

A white boy, aged 13, presented a condition of two years' duration. Vincent's angina was diagnosed at another hospital. A single injection of neoarsphenamine was given. The patient did not do very well under other treatment. On admission to the hospital a marked deposit was noted on all the mucous membrane of the mouth. The mouth was very foul and in addition, the patient had oozing, crusting impetiginous lesions on the chin and face. Dark-field examination was positive for Vincent's organism. The boy was admitted to a ward, where he

was given two injections of neoarsphenamine and a mouth wash of sodium perborate; an ointment was applied to the facial lesions. The condition of the mouth began to clear up. The patient was then given 0.2 Gm. of neoarsphenamine at weekly intervals for nine weeks, but it was noticed that after four injections, improvement seemed to stop. The question of thrush then came up, and microscopic examination showed practically a pure culture of septate mycelia. In addition, study of the nails, which had been said to be affected by paronychia, showed budding and nonbudding yeast and primitive mycelia.

On Sept. 19, 1930, dark-field examination was positive for Vincent's organisms. On November 6, microscopic examination of the exudate of the mouth and nails was positive for mycelia and budding yeast. Neoarsphenamine, 0.2 Gm., was given with partial success until a diagnosis of thrush was established. Locally, a 15 per cent solution of chromic acid was given at weekly intervals. Inhalations of ethyl iodide are now recommended.

This is an interesting case of mixed infection of Vincent's angina and thrush, showing a positive dark-field examination for Vincent's organisms with good response to neoarsphenamine, but when the medication was continued over a longer period without further beneficial results, further study (microscopic) revealed the presence of thrush in the mouth. It is also interesting to note that the lesions diagnosed as impetigo and paronychia were basically of a fungus origin.

DISCUSSION

DR. R. L. SUTTON, Kansas City: This case is interesting from the standpoint of treatment. Not necessarily in this case but in some of these cases, we have found that almost as good results are obtained with some of the water-soluble preparations of bismuth used intramuscularly. Dr. Stuart Wade of San Francisco suggests the combination of a strong salicylic preparation to get as much dirt off as possible and then a 1 per cent solution of iodine crystals in xylene, which he has found effective in the treatment of infections of the nails.

HYPERKERATOTIC FORM OF FUNGUS INFECTION. Presented by DR. A. M. GREENWOOD, Boston.

A white man, aged 60, "always had eczema" of the hands and body. Eight months before presentation he had infected fingers and was given a solution for soaking them. Soon afterward, the present condition developed. He showed hyperkeratosis of the tips of the fingers, toes and soles, deformity of all the nails and fissuring of the fingers. Microscopic examination of the nails was negative for fungi. Nine plants showed two cultures of a yeast-like organism.

DISCUSSION

DR. C. M. WILLIAMS, New York: I should like to question that diagnosis. I doubt very much if the infection has anything to do with the organism. The type of nails seen in this case are not common when there is a history of development over a period of nine months. We see people of all ages who have had that general type of nail for years. I have never seen all the nails affected suddenly in a period of three or four months. Nails of that kind are apt to harbor all kinds of infections. I have found them loaded with ringworm organisms. I do not think, however, that the organism has anything to do with the condition of the nails. The condition of the palms is of the same kind, and again there is no history concerning it. Clinically, this disorder suggests an atrophic cause so strongly that it seems to me that is the most reasonable explanation. That would also explain the unusually sudden and rapid development and the symmetrical appearance. I saw no record of examination of the man's nervous system. Such record should be made. Poisoning with heavy metals is all the rage nowadays, but I have never seen it. Some atrophic or neurotic disorder seems to me to be the most likely explanation; an infection of the hyperkeratotic form is rather

secondary. Rowe has recently published a method of treatment in which the ordinary solution of barium sulphide in glycerin is left in place for fifteen or twenty minutes and then washed off.

Dr. G. Archambault, Montreal: To me, the man's story if true, that this extraordinary condition did not appear on the nails until after treatment, was interesting. He said he was told to soak them in a solution, which I took to be permanganate, and that after this treatment the nails began to show this infection.

BROOKLYN DERMATOLOGICAL SOCIETY

Arthur M. Persky, M.D., *Secretary*

Regular Meeting, Nov. 17, 1930

Abraham Walzer, M.D., *in the Chair*

Verruca Necrogenica. Presented by Dr. John C. Graham.

Dr. B. D., aged 37, a urologist, had always been well and healthy up to one and one-half years prior to presentation. While removing a tuberculous kidney, the physician cut the left middle finger near the distal joint. The lesion healed fairly rapidly, and a few weeks later it broke down with a scaly, nonpustular lesion which was treated by fulguration eight months after the original injury. Following this treatment, the lesion healed slowly but not completely. It had slightly increased in size. Six weeks before presentation it was fulgurated completely a second time. At presentation the patient showed a dime-sized scaly lesion in which there were verrucose areas. The edges were sharply defined, and between the warty growths the skin was smooth. There never had been any tuberculosis in the patient's family, and he had not had any previous lesion of the skin. The Wassermann reaction was negative.

DISCUSSION

Dr. E. W. Abramowitz: I believe the lesion to be tuberculosis verrucosa cutis. A small piece may be excised for microscopic study and inoculation into an animal. I would give two and one-half skin units of roentgen therapy to the lesion, and if there is no improvement, remove it completely with surgical diathermy.

Dr. L. Chargin: I agree with the diagnosis suggested by Dr. Abramowitz. The lesion is tuberculous, but I do not agree with the suggestions concerning therapy. A recent experience convinces me that treatment with the roentgen rays is inadequate and that the best method is to destroy the lesion with surgical diathermy.

Dr. A. Walzer: I think that the whole lesion ought to be destroyed completely. I am much inclined to the use of fulguration first and the roentgen rays afterward.

Favus. Presented by Dr. Louis J. Frank.

F. C., aged 8, presented for examination areas of alopecia with scarring and minute lemon-yellow cup-shaped scales. The condition commenced three years prior to presentation, with small papules on the scalp. This condition gradually spread, but it did not itch much. No other members of the family were affected. Several cultures were taken and proved to be negative for favus after seventy-two hours of growth.

DISCUSSION

DR. E. W. ABRAMOWITZ: I do not see any signs of any of the cicatrizing alopecias, except the yellowish cups that occur in favus. The use of Wood's filter is a great help in facilitating the finding of the fungus. If fungi are found, I should advise roentgen epilation and not the use of thallium acetate. The latter should not be given as first choice on account of the toxic reaction of the drug, even in children.

DR. J. SKEERS: I do not know what the condition was a year or two ago, but tonight it does not look like favus. There is scar tissue, but the scaling present is the result of treatment. The scale is not typically cup-shaped. The patient's mother says that the scarring has not increased, and that there are healthy hairs piercing the scars. The condition is possibly the result of abscesses or folliculitis.

DR. E. A. GAUVAIN: The scarring is typical of favus.

MONILETHRIX. Presented by DR. A. WALZER.

M. G., a school girl about 13 years of age, had been under observation since Nov. 17, 1925 for a typical monilethrix, which involved the entire scalp and back of the neck. There was a definite history of monilethrix in the family. The mother and three uncles of the patient had the same condition. The patient had previously been presented as having a case of monilethrix.

On March 11, 1929, the patient was given an epilating dose of the roentgen rays. In due time, following an alopecia, the hair returned, and while it was much better than originally, it still showed monilethrix.

Eight months later, on Nov. 18, 1929, another epilating dose of the roentgen rays was given. Again the hair returned; it was much better and showed less monilethrix than previously.

On June 21, 1930, another epilating dose of the roentgen rays was given, with the result as shown. The hair was practically free of monilethrix. There were no keratotic lesions on the scalp or anything suggestive of monilethrix. In back of the neck, however, (which had been covered when roentgen therapy was administered) there were still some beaded hairs and some keratosis pilaris.

DISCUSSION

DR. LOUIS CHARGIN: Some years ago the scalps of two children with this condition were epilated. There was improvement, but later recurrence took place.

DR. E. W. ABRAMOWITZ: I have seen cases in which epilation with the roentgen rays was done two or three times for relapsing tinea capitis, with presumably no ill effects on the growth of the hair or otherwise. Considering the hereditary nature of this malady, the results obtained by any epilating method could be only temporary. Therefore I should consider it inadvisable to keep on repeating the roentgen epilation, as permanent alopecia or other radiation sequelae are apt to follow. The result so far obtained by the chairman is striking and interesting.

DR. E. A. GAUVAIN: The chairman is to be congratulated on the result. The fact that interested me was that he could give three epilation doses on the scalp within a year and a half without having any areas of permanent alopecia. I think that his technic must have been extremely accurate.

DR. A. WALZER: The use of the roentgen rays in this condition has been attempted before by others, but apparently without success, owing to the fact that only one epilating dose was applied. After giving the patient the first epilating dose of roentgen rays, the hair returned, much improved but still markedly beaded. Though the patient was considerably improved after the second dose, she still showed some monilethrix. With the third treatment, the result is as

you see it tonight. Monilethrix was always considered a congenital condition, but if a cure should follow this therapy, one would be inclined to favor a mycotic origin of monilethrix.

I am going to give one more epilating dose on the back of the neck where she still shows a few monilethrix hairs.

PHENOLPHTHALEIN ERUPTION (FIXED TYPE). Presented by DR. MORTIMER J. CANTOR.

R. S., a female 34 years old, had taken phenolphthalein for several years until three months before presentation. On the forehead she had an eruption about 3 cm. in diameter of about three years' duration. This condition had never completely disappeared, and had left a brownish area at the site of eruption. Whenever phenolphthalein was taken, the lesion became edematous and erythematous; this lasted for three or four days, with itching and burning followed by slight exfoliation; the pigmented spot remained. The patient had received treatments with ultraviolet light. She had not been using phenolphthalein for the past three months.

DISCUSSION

DR. L. CHARGIN: We may conceive the fixed eruption as being due to local receptors which are aroused every time the areas come in contact with the noxious agent. It is a common experience that repeated insults not only arouse the older lesions but give rise to new areas.

DR. E. W. ABRAMOWITZ: The participation of old lesions in recurrences after the use of certain drugs may be explained by the time-worn expression of a locus minoris resistentiae. The reason for the occurrence and the location of the first patch has recently been explained in the case of drug eruptions as a vasomotor phenomenon. The drugs that are capable of producing vasomotor reactions will become located in those areas of the skin where vasomotor instability (dermographism) is most pronounced.

The pigmentations that follow the fixed eruptions are treated with mild nonirritating topical remedies, and the offending drug is discontinued. The use of the ultraviolet radiation only increases the pigmentation, which I believe is the case in this patient.

LEUKODERMA (?). Presented by DR. B. B. BERKOWITZ.

H. S., a white boy, 1½ years of age, of Jewish parentage, was in good health, except for a slight erythematous, irregular, scaly dermatitis of the cheeks. Over the arms, the forearms, the upper part of the chest and the suprascapular areas there were diffused white spots ranging in size from that of a pea to that of a bean, with lacelike formations at the borders; they were surrounded by hyperpigmented skin. The white areas showed no atrophy or scarring. There was no history of sunburn, or chemical irritation, or any other condition of the skin on the affected areas.

DISCUSSION

DR. E. W. ABRAMOWITZ: I should suggest the examination of the depigmented lesions under the Wood's filter to see whether they show the golden fluorescence of tinea versicolor and also the microscopic examination of scrapings for *Microsporon furfur*.

DR. L. CHARGIN: Clinically this case is leukoderma, but the only question is whether the child did not have some type of lesion in those areas which prevented pigmentation when he was exposed to the sun's rays during the past summer.

DR. E. A. GAUVAIN: I found that the arms had been well tanned before the end of July, and that in August the light spots appeared, so that the condition was not caused by the sun's pigmenting some areas and not others. I wondered if the scratching of mosquito bites had caused the disturbance.

A Case for Diagnosis (Glossitis?). Presented by Dr. L. Frank.

Mrs. L. H., aged 42, had always been well, except for a miscarriage at the age of 32. One year prior to presentation the patient had had her tonsils removed; immediately thereafter she complained of a burning sensation of the tongue. There was present over the middle of the tongue a rectangular area about ½ by 1 inch (1.27 by 2.5 mm.), which was erythematous and entirely devoid of mucous membrane. A similar patch existed opposite it on the hard palate. The Wassermann reaction of the blood was negative; a chemical examination of the blood gave negative results.

DISCUSSION

Dr. E. W. Abramowitz: The rhomboid denudation of the tongue, the leukoplakia-like lesions on the cheeks and the keratosis pilaris on the body are not correlated with any definite disease of the skin with which I am acquainted. The pigmentary lesions on the lips may be due to the large number of freckles present on the face. The lesion of the tongue may be lingua geographica or, if considered with the lesions on the cheeks, perhaps an atypical case of lupus erythematosus.

Dr. L. Chargin: This case recalls to me the condition known as glossitis medicana thrombica, which it closely resembles.

Keloid (Postvaccinal). Presented by Dr. Mortimer J. Cantor.

M. S., aged 22, single, born in the United States, a draftsman, had always been well, except for a persistent postvaccinal keloid.

Various sized keloids were present over the right scapula, left arm, and left shoulder, which he stated were of many years' duration. He had received three roentgen treatments without improvement.

DISCUSSION

Dr. E. W. Abramowitz: The old literature cited good results by plain excision and also with various topical remedies. It is possible that the results are better in hypertrophic scars following definite injuries to the skin than with true keloids, because the latter arise presumably after some minute or no ascertainable trauma. Keloids are actually fibromas that have their own peculiar way of extension and resistance to treatment, though they occasionally respond to the simplest measures and even disappear spontaneously. When of short duration, keloids and hypertrophic scars respond in many instances to radium or roentgen therapy. For that reason, it is perhaps best to excise, whittle down or scarify those of longer duration, with the knife or surgical diathermy, in order to obtain the maximum effects of radiation. Failures result in spite of these procedures, and further research is needed to increase the number of satisfactory results.

Dr. J. C. Graham: My experience is similar to that of Dr. Abramowitz. I believe that if you use the roentgen rays early, while the keloid is still active, it can be flattened down. In this boy the condition is not in the active stage. These keloids are not tender. I do not think that any treatment will help.

Dr. E. A. Gauvain: These keloids have occurred at the site of previous lesions; the stellate one on the arm followed vaccination. The others followed large furuncles on the back, associated with acne. Like Dr. Graham, I have had success with roentgen therapy.

Dr. L. Chargin: Recent keloids yield to the roentgen rays and particularly to radium. I believe that old keloids are treated best by excision when possible, followed by the roentgen therapy while the scar is still very young. In this case the latter method seems indicated, because in the first place the keloids are old, and secondly because they are amenable to excision.

Parapsoriasis en Plaques (Brocq). Presented by Dr. A. Walzer.

H. E., a man, aged 50, married, a stableman, presented an eruption of six months' duration which was located on the sides of the trunk, the back, the

inner part of the thighs and on the upper extremities. The lesions consisted of erythematous patches of various shapes — elongated, round, irregular — which varied from the size of a pea to that of a silver dollar. They were sharply outlined, flat, not infiltrated and of a faint yellowish red. The patches were covered with thin, dry, furfuraceous scales, which did not bleed on scratching. In some of the areas there was a suggestion of atrophy; but on closer inspection, this apparent atrophy was caused by a wrinkling of the thin scales. Here and there were tiny lichenoid papules near the margins of the large patches. In some locations, these patches formed irregularly shaped figures, as in the groin and on the upper part of the left arm. The patches on the abdomen and trunk were arranged in lines. The mucous membranes, the palms, the soles, the scalp and the nails were normal.

DISCUSSION

DR. E. W. ABRAMOWITZ: I thought that the lesions were typical of parapsoriasis en plaques. Of course, there is always a possibility that such a condition is mycosis fungoides; the only way to determine that is to take a specimen of tissue for microscopic study.

DR. L. CHARGIN: The bizarre figures, the linear lesions and the slight infiltration suggest the possibility of early mycosis fungoides, and this should be borne in mind in consideration of this case.

DR. J. SKEERS: Probably the light, which is yellow, gave me the idea that the lesions seemed to have a yellowish tint. The tumors were linear and raised, and the skin over them was wrinkled. The condition reminded me of xanthoma tuberosum.

DR. A. WALZER: I think that eventually parapsoriasis en plaques will be separated from the whole group of parapsoriasis. Why attempt to group diseases that are so diametrically and clinically opposite as the various types of parapsoriasis? The only connecting link between these diseases is the histologic picture. One cannot differentiate the histology of a wheal from the histology of dermatitis venenata or multiform erythema. Still a definite distinction is made clinically. I think that in certain quarters at the present time there is a tendency to take out of the parapsoriasis group these cases described by Brocq. As to the question of mycosis fungoides, the lesions are neither raised nor do they show infiltration. The peculiarly shaped lesion on the right arm is not one patch, but it is composed of a number of individual lesions, and so it is not a lesion of mycosis fungoides as was suggested. To my mind, the case fits into a clear picture of erythrodermie pityriasique en plaques disseminées (Brocq).

PARAPSORIASIS VARIOLIFORMIS. Presented by DR. A. WALZER.

J. M., a man, aged 25, single, a musician, had always been well. At presentation the entire body and extremities were involved and were covered with macules and umbilicated papules. They were of one year's duration. Some of the lesions looked like those of psoriasis or parapsoriasis, but on scratching there were no bleeding points. Scattered throughout and intermingled with these lesions there were also many small lichenoid papules. A few weeks before presentation, there were many vesicles in the scaly patches. The face, the palms and the soles were free from lesions. The mucous membranes showed no lesions.

DISCUSSION

DR. E. W. ABRAMOWITZ: Clinically, I accept the diagnosis as presented, but I believe that the eruption has been present much longer than the patient stated. Mucha, Habermann and others on the continent and Wise and Gross in this country have called our attention to the varioliform lesions that may occur in parapsoriasis.

DR. L. CHARGIN: I believe that this is an excellent example of the disease in question.

DR. A. WALZER: When first seen about ten days ago, the eruption looked like varicella. At that time the patient had erythematous patches with a thin scale and patches surmounted with vesicles. Tonight he is much improved. The tendency to place such cases in the parapsoriasis group does not seem natural.

A CASE FOR DIAGNOSIS (ECZEMA). Presented by DR. A. WALZER.

N. K., a man, aged 45, married, a tailor, claimed that he had had trouble with his skin since 1918, and that he had been treated in various local institutions. The condition of the skin cleared up, only to recur.

The patient appeared at the Good Samaritan Dispensary about ten days prior to presentation, with a pruriginous eruption of about six weeks' duration. There was no history of medication. There were erythematous, sharply outlined lesions over the ears, which were suggestive of seborrhea or psoriasis and were covered with thin scales. Over the trunk, both in front and in back, and on the upper part of the thighs anteriorly, there were erythematous, pinhead-sized, slightly elevated papules; some of them were round, some angular. The lesions joined and formed patches of various sizes and shapes, some of them as large as 3 by 6 inches (7 by 15 cm.). The large patches were sharply elevated, and in some instances they were infiltrated, especially over the shoulders. In other places they were flat, but all of them were sharply outlined, and the borders were irregularly festooned. In many of the large patches, the individual lesions could still be noted; in others, they could not. The color of these patches varied from pink to an almost violaceous tinge. On the left leg anteriorly, there was a large, somewhat elongated, infiltrated patch, which gave a strong indication of psoriasis. The mucous membranes were normal.

DISCUSSION

DR. E. W. ABRAMOWITZ: One or two lesions should be excised for microscopic study. I believe that this patient has a weeping dermatitis of the legs with a lichenified papular eruption of the body, a condition which is often seen these days and in which a definite diagnosis is not always possible. In some, arsenic is found to be the offending agent. A few turn out to be mycosis fungoides or some type of lymphoblastoma. Finally, there are cases that seem to be associated with various metabolic disturbances and the functional neuroses; they present great problems in diagnosis and treatment.

DR. A. WALZER: Mycosis fungoides could be considered, but the large patches are made up of tiny, flat, lichenoid lesions that can be seen clearly along the borders, so that all these patches are formed by the grouping of individual lesions. In one location, a suggestion of mycosis is very evident, but the presence of these lichenoid lesions, the absence of marked itching, the long duration of the disease and the marked diminution in the infiltration and the general improvement under little local treatment are all evidence against a diagnosis of mycosis fungoides.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, Nov. 19, 1930

CLARK W. FINNERUD, M.D., *President, Presiding*

A CASE FOR DIAGNOSIS (LYMPHOBLASTOMA OR SEBORRHEIC DERMATITIS?). Presented by DR. H. M. HEDGE.

A laborer, aged 50, stated that in August, 1929, he developed two abscesses in the peri-anal region which ruptured and drained. He had been using waste as toilet paper. After drainage of the abscesses, the gluteal region healed, but an oozing, itching, burning eruption then developed on the anterior surface of both

thighs, which soon spread to the anterior surface of both legs. This eruption had persisted for fourteen months, being alternately better and worse. There was no history of previous disease of the skin.

The blood count showed: erythrocytes, 5,200,000; leukocytes, 9,200; hemoglobin, 90 per cent. The urine and the Wassermann reaction were negative.

DISCUSSION

DR. PAUL A. O'LEARY: I believe that this patient has a lymphoblastoma, probably of the mycosis fungoides type. The case requires further study and observation to confirm this impression.

DR. OTTO H. FOERSTER: It occurred to me that the history of a poorly draining abscess was of importance in that it locates the source for the bacterial sensitization of the skin which has resulted in the development of an infectious eczematoid dermatitis, with the adenitis secondary to this condition.

DR. F. E. SENEAR: I thought of the three diagnoses mentioned by Dr. O'Leary and Dr. Foerster and believe that they would have to be considered, but it impressed me that a good deal of the eruption on the upper portion of the trunk had the appearance of a seborrheic dermatitis. I felt, along the lines of Dr. Foerster's remarks, that the man probably had basically a seborrheic dermatitis and that the abscess acted as a source of secondary infection; so we are dealing with a dermatitis of the infectious eczematoid type.

DR. J. H. MITCHELL: Two weeks ago I had an opportunity to see a classic seborrheic dermatitis back of the right ear. There was a weeping, oily lesion, and the history was that in July the patient was operated on for mastoiditis. Since then, the process had developed and continued to the present time. Back of the right ear was a yellowish, serous, crusted lesion in which I found, with no difficulty, a great many chains of hemolytic streptococci which grew readily in blood agar. Whatever seborrheic dermatitis may be, we have in this case a typical seborrheic dermatitis back of the ear, in which there is a definite etiologic factor; namely, the operation for a streptococcic mastoiditis and the presence of streptococci, which was readily cleared up with radiotherapy and simple antistreptococcic applications. It is altogether possible that this man had something of that sort in the abscess which has spread and has resulted in the present condition.

DR. H. M. HEDGE: This man is from the County Infirmary of McHenry County, and it has been difficult to get the cooperation desired with blood tests, etc., that we would like to have in this type of disorder. The physician who referred him to the clinic has promised to get a differential count on the blood and to have some other laboratory work done. I rather felt from the history that the case came in the group of lymphoblastomas.

CASE FOR DIAGNOSIS (ERYTHEMA ANNULARE CENTRIFUGE?). Presented by DR. F. E. SENEAR and DR. MINNIE C. PERLSTEIN.

An Italian woman, aged 67, was first seen by Dr. Senear and Dr. Perlstein in October, 1929, with an eruption of two months' duration. The condition began over the dorsa of both wrists as pea-sized papules which spread peripherally until the lower third of the extensor and lateral margins of both forearms were involved. When first seen, there were symmetrical palm-sized, sharply demarcated areas of hyperpigmentation over the affected sites. The border of the lesions was dull red, smooth, serpiginous in outline, and raised above the surrounding normal skin. The center of the lesion was a metallic yellowish-brown tint and covered with a fine furfuraceous scale. Within this central pigmented area were four or five raised erythematous papules 1 cm. in diameter, some of which had a small amount of central clearing. Under both eyes and over both parotid regions were similar plaques of hyperpigmentation surrounded by a slightly raised erythematous border. Itching was intense. Two weeks later the individual nodules over the wrists had disappeared, but there was a small group of papules in the left sub-

mental region and just below the left cubital fossa. The following week there were, in addition to the preexisting lesions, scattered, slightly raised erythematous papules over the lower part of both legs, especially in the upper third. Some of the lesions had clearing centers forming rings and irregular circles 2 by 4 cm. in diameter. Other lesions had fused to form gyrate figures. The patient's main complaint was headache associated with hot flushes, especially in the affected areas.

The family history and the past history were essentially unimportant. The patient was in unusually good physical condition except for a blood pressure of 192 systolic and 120 diastolic and marked arteriosclerotic blood vessels. Urinalysis showed an occasional hyaline cast and a faint trace of albumin. The Wassermann and Kahn tests of the blood were negative. The blood picture showed hemoglobin, from 90 to 95 per cent; white blood cells, 15,100; 45.5 per cent polymorphonuclear leukocytes, 43 per cent small lymphocytes, 6.5 per cent large lymphocytes, and 5 per cent eosinophils. Another count taken a week later showed 51 per cent polymorphonuclear leukocytes, 6 per cent large lymphocytes, 38 per cent small lymphocytes, 4 per cent eosinophils and 1 per cent basophils.

The histologic examination of a specimen from a biopsy by Dr. M. R. Caro was as follows:

A specimen for biopsy taken from the border of an annular lesion showed a thin scale covered by a thin crust, slight edema of the epidermis, a considerable degree of edema of the corium, and thin mantles of round cell infiltration about the blood vessels.

A specimen for biopsy taken from a small nodule showed similar changes except that the walls of the blood vessels were thickened and the perivascular infiltration was much thicker and denser and contained in addition to round cells a few eosinophils.

DISCUSSION

DR. M. H. EBERT: This case corresponds quite closely clinically to the cases of a similar type of lesion that I had an opportunity to see in Dr. Ormsby's practice. The lesions start with small, erythematous circles which spread fairly rapidly and then disappear. After their disappearance, new ones form. As to the etiologic factor in this case, I would not be able to make any suggestions.

DR. L. F. WEBER: I agree with Dr. Ebert, but I think that the possibility of eruption due to the use of drugs should be kept in mind.

DR. F. E. SENEAR: We had thought of drugs as a possible etiologic factor in the production of the picture, but the patient has been in good health and we have not been able to determine the ingestion of any drugs whatever.

PSORIASIS, PUSTULAR? Presented by DR. F. E. SENEAR and DR. MAX S. WIEN.

T. C., a man, aged 60, was previously shown at the annual meeting of the Society in January, 1929 (ARCH. DERMAT. & SYPH. **20**:392 [Sept.] 1929). He was first seen on Sept. 13, 1927, when he had a generalized exfoliative dermatitis of an acute type. His first lesion was noted about June, 1926, on the flexor surface of the right wrist as a group of pustules that gradually spread up the arm and later involved the shoulders, then the left arm, and within the next month became generalized. Subjective sensations were slight. The patient had never been entirely free from eruption since he was first shown, although there had been considerable improvement in the condition of the skin since that time. The patient had also had a deforming arthritis of the knees and elbows and of the joints of the hands and feet. There had been considerable improvement in the condition of the joints, although there was still a deforming arthritis of the hands, especially of the right hand.

The patient presented the picture of patches of exfoliation on the trunk and extremities, with normal skin intervening. Superimposed on these patches were scattered waxy scales and crusts, particularly on the anterior surface of the legs, the dorsa of the feet, soles, forearms and palms, and discrete patches on the trunk.

In some of these patches, groups of pustules could be seen, especially on the legs and palms. Atrophy of the nails was present in association with a residual deforming arthritis of the hands and feet.

General physical examination gave essentially negative results. The Wassermann reaction of the blood and the gonorrheal complement-fixation test were negative. Examination of the blood was negative except for a moderate leukocytosis. Cultures from the pustules revealed *Staphylococcus pyogenes-aureus*. Except for some improvement in the condition of the joints, the residual skin patches as shown had not responded to varied local and general therapy.

DISCUSSION

DR. M. H. EBERT: I have had the opportunity to observe two sisters in Dr. Ormsby's office, each of whom has an eruption that resembles this in many respects. We were inclined to consider our cases as possible examples of what has been described in the literature as "psoriasis pustulosa." During the rest period, psoriasis-like lesions are always present in the scalp and on the extensor surface of the limbs. There are frequent periods of exacerbation; at this time erythematous patches appear. On these patches occur crops of very small superficial pustules similar to those present in the case seen today. These pustules rapidly involute and form a crust which covers the surface. Finally, the whole body is involved in what is practically an exfoliative dermatitis. Eventually this clears up and the condition returns to the latent stage. These cases certainly bear a close relation to the case presented today. In this case there is an atrophy under the arm, and in one of Dr. Ormsby's cases atrophy is also present on the lower extremities. In addition, in our patients changes in the nails are exhibited, but they are not so marked as in the nails of the patient shown today, although they are apparently of the same type. Miliary pustules form underneath the nails and raise the nails up from the bed, and then the pus discharges. We have been unable to find any organisms in the cultures. Inoculations of animals have been negative, and no organisms can be seen microscopically. Histologically, the symptoms are suggestive of dermatitis repens. The case presented today is perhaps more suggestive of that disorder than the ones I have been describing, although they are very similar. It is interesting that the first two cases of psoriasis pustolosa reported in the literature by von Zumbusch were in a sister and brother. Dr. Ormsby's patients are sisters. In the case presented today there is no apparent evidence of familial tendency.

DR. KARL G. SWICK: The case, both from its appearance and the history of long duration and resistance to treatment, reminds me of the acrodermatitis continues d'Hallopeau, perhaps more familiar to you under the name of Audry's phlycténoses récidivantes des extremités. As Dr. Ebert pointed out, until lately definite etiologic factors have not been determined in these conditions. Recently, however, Lutz, I believe, isolated a strain of streptococci which produced analogous lesions in animals. It seems noteworthy that in some cases local applications of arsphenamine have proved effective.

DR. F. E. SENEAR: We have had the two diagnoses mentioned, the pustular type of psoriasis and Hallopeau's dermatitis, under consideration. The patient has been long under observation and has been examined by different dermatologists who have visited the clinics, and they have been divided about equally in opinion. We brought him over today because Dr. Otto Foerster had hoped to bring down a patient with similar symptoms. The patient at Ann Arbor and the patients of Dr. Ormsby who were described are very similar.

TELANGIECTASIA (FAMILIAL). Presented by DR. J. F. WAUGH and DR. RUBEN NOMLAND.

A woman, aged 21, presented a disorder which she said had been present since birth. Two brothers, one sister, her father and two paternal aunts were similarly affected. In all cases, the trouble was present at birth or noted shortly afterward. There was no subjective symptom at any time.

The lesions consisted of groups of dilated capillaries, some barely perceptible, others quite pronounced, especially on the face and neck where the lesions were most numerous. The shoulders and arms were moderately involved, the thorax and lower extremities were practically free from trouble. The lesions ranged in size from that of a pinhead to that of a pea and were composed of groups of capillaries with some fine, radiating telangiectatic vessels present. The condition became more noticeable as the patients grew older.

DISCUSSION

DR. S. W. BECKER: This is, I think, a type of so-called congenital telangiectasia. It is not the type that Osler described as familial telangiectasia with hemorrhage because, first, the lesions consist of linear telangiectasia and not of more or less papular lesions, and, secondly, no member of this family has had hemorrhage from the mucous membrane. It does not fit in with the so-called acquired telangiectasia that commonly follows some general disease such as tuberculosis or syphilis. The condition presented by the patient is much more common in certain European countries than it is here. It is not uncommon to see a mother and daughter in Switzerland with marked facial telangiectasia, but here we see very little of it.

DR. RUBEN NOMLAND: We felt that this case closely resembled those in the group described by Osler, in spite of the fact that there is no history of hemorrhage. There are areas of telangiectasia in the oral mucous membrane.

ACNE VARIOLIFORMIS. Presented by DR. M. H. EBERT.

A man, aged 47, had an eruption of fifteen years' duration, which was more marked in the summer. The lesions started as small nodules under the skin and itched when the patient was warm. They lasted for about four weeks, then broke down and became absorbed soon afterward.

Inspection revealed dull red nodules, ranging in size from that of a matchhead to that of a split pea, appearing along the margins of the scalp in the temporal and parietal regions. Several shallow scars were present in these areas.

DISCUSSION

DR. DAVID LIEBERTHAL: I thought that this was a case of acnitis.

DR. J. H. MITCHELL: I am inclined to think that this is a case of folliculitis such as is seen in the scalp from time to time associated with a great deal of itching, and occasionally with a certain tendency toward scarring. The fact that the condition is worse in the summer when sweating occurs fits in with this theory. Whether the causative organism is *Staphylococcus folliculitis* can only be determined by culture. Whether one calls it acne varioliformis or some other term is of no moment to me.

DR. O. H. FOERSTER: I thought that it was an acne varioliformis. There were numerous, punched-out scars in the temporoparietal regions, a favorite localization for the lesions of this disorder.

DR. M. H. EBERT: The case was presented with the diagnosis of acne varioliformis. As I stated, no opportunity has yet been presented to do any laboratory work.

LICHEN SPINULOSUS. Presented by DR. J. F. WAUGH and DR. RUBEN NOMLAND.

A healthy Negress, aged 21, was first seen at the clinic at Cook County Hospital. She complained of an eruption of the skin of five months' duration which began as a severe dandruff in the scalp and then spread to various parts of the body.

The lesions consisted of rather large, scaling patches several inches in diameter. Each patch was sharply marginated, with a slightly elevated border. In the patches there was definite spinelike keratosis of the hair follicles, with a furfuraceous, adherent scale. The lesions were located on the scalp where there was partial alopecia, in the axillae and on the back, forehead and neck.

Examination of the material in a 10 per cent solution of potassium hydroxide showed nothing suggestive of fungous organisms. Cultures made on Sabouraud's medium were not completed, but a yeastlike organism, probably cryptococcus, seemed to be growing.

The Wassermann reaction was negative.

DISCUSSION

DR. F. E. SENEAR: I was much interested in this case because of the description that Graham Little gave some years ago of the association between folliculitis decalvans and lichen spinulosis. Several other European writers described other cases later, and we had an opportunity to study a case in Dr. Pusey's office. We called it a combination of folliculitis decalvans and lichen spinulosus. We were unable to determine what the connection was, but thought at that time of the lichen spinulosus as being an expression comparable to that of the tuberculids and the tricophytids, due either to the absorption of toxins or involvement of the skin through a hematogenous or lymphogenous spread. It is extremely interesting to me in this case that we have a fungus apparently responsible for the condition of the scalp associated with the eruption so typical of lichen spinulosus. I should like to know whether any organisms were isolated from the lesions on the body and whether the biopsy showed evidence of this.

DR. KARL G. ZWICK: This case belongs to the category of acuminate follicular keratoses which were described by Bizzozzero, from Jadassohn's clinic in Berne, as lichen spinulosus. As Dr. Senear mentioned, some of the cases were trichophytids and were later, to indicate their etiology, renamed lichen trichophyticus in analogy to the lichen scrofulosorum. The appearance of the patient in Dr. Waugh's case corresponds closely to that of the patients in the original cases that we saw at the clinic in Berne.

DR. CLARK W. FINNERUD: I saw this patient late one afternoon and sent her to the laboratory. At that time the spines, which were evident in the intrascapular region today, could not be seen. I think that this was due to the large amount of scaling and crusting which was then present. The lesions were sharply defined in the axillae, groin and inframammary regions. I demonstrated her to my students as having a probable mycotic dermatitis, of seborrheic dermatitis-like character.

DR. RUBEN NOMLAND: Potassium hydroxide preparations were negative. From cultures taken from the lesions below the breast, a yeastlike organism was grown that we think is a small cryptococcus. Dr. Waugh thought the case was one of lichen spinulosus. I tried to make a diagnosis of pityriasis rubra pilaris but have not been able to get any confirmation.

DR. O. H. FOERSTER: In connection with Dr. Nomland's remarks, it is well known that pityriasis rubra pilaris often begins as in this patient with a pronounced scaling condition of the scalp considered to be "dandruff" and then extends to the forehead. I think that lichen ruber acuminatus and Devergie's disease are identical conditions.

A CASE FOR DIAGNOSIS (EXTRAMAMMARY PAGET'S DISEASE?). Presented by DR. F. E. SENEAR and DR. M. R. CARO.

A white woman, aged 70, presented an irregularly rounded, sharply defined patch on the sternum, about 5 cm. in diameter. The lesion was bright red, covered by a thin scale, slightly raised above the surface, infiltrated, and slightly nodular throughout. Small telangiectatic capillaries coursed over the surface. Itching was slight.

The lesion began twelve years ago as a dime-sized patch which had been growing slowly.

A biopsy was taken and the epidermis showed irregular thickening with a few downgrowths into the corium, a varying degree of edema with ballooning degeneration of some of the cells, numerous mitotic figures, and in places an apparent disruption of the basal layer with an invasion of the rete by the infiltrating cells from below.

The upper part of the corium was filled by an infiltration consisting chiefly of lymphocytes along with a few macrophages, polymorphonuclears, chromatophores and eosinophils, most dense about the tips of the downgrowths of the rete. Deeper in the corium, the infiltration was chiefly perivascular. The corium was edematous, and the blood vessels were dilated.

DISCUSSION

DR. PAUL A. O'LEARY: I find it difficult to conceive of an extramammary Paget's disease remaining for a period of twelve years without showing more clinical evidence of epithelioma. I should expect by this time that some evidence would be manifest of superficial ulceration or a malignant border. I favor a diagnosis of sarcoid rather than extramammary Paget's disease.

DR. M. S. FINK: I could not correlate the histology with Paget's disease, nor did the lesion resemble a sarcoid.

DR. A. W. STILLIANS: I do not recall seeing the specimens, but I thought the case a dyskeratosis corresponding to the diagnosis of Paget's disease.

DR. M. H. EBERT: The histology, in my opinion, did not show the dyskeratosis that one should expect to find in Paget's or Bowen's disease. There was some evidence that it might fit in with superficial epithelioma, but the fine rolled border one finds in those cases was not present. Clinically, I was struck with the idea that it might be a sarcoid, but I could not find anything in the histology to prove this.

DR. S. W. BECKER: There were large polymorphonuclear cells that I thought were definite enough to justify a diagnosis of Bowen's disease. When one diagnoses Bowen's disease I think it must be done histologically and not clinically. The statement that a certain type of lesion clinically shows the changes in Bowen's disease is, histologically, turning the thing around. Bowen's disease is a certain change that can be diagnosed only histologically. There are several conditions clinically, such as keratosis senilis or even plaques, which look like simple dermatitis, but the lesions are persistent; they do not clear up; they tend to spread very slowly, and histologically one finds the changes that Bowen described. I would make a diagnosis in this case of Bowen's disease.

DR. MARCUS R. CARO: We were unable to make a definite diagnosis although Paget's disease was suggested by the slight changes in the cells. Ewing makes a distinction in that in Bowen's disease the prickles between the cells are still present, whereas in Paget's disease they are lost. In the slide these changes were not evident.

DR. F. E. SENEAR: We considered several diagnoses. We considered the case as belonging in the benign epitheliomatous group or as sarcoid. The pathologic process was suggestive of Paget's disease, however, so we presented the case with a questionable diagnosis of that disease.

A CASE FOR DIAGNOSIS (DERMATITIS HERPETIFORMIS?). Presented by DR. S. W. BECKER, by invitation.

A man, aged 51, a hotel proprietor, first entered the clinics of the University of Chicago on Nov. 14, 1930, complaining of a generalized itching eruption of the face, trunk and extremities. He dated the onset of his trouble from June, 1930, when he first noticed a marked itching between his shoulder blades, followed

soon after by an outbreak of small papules and vesicles. In the course of a few days, the itching and eruption had extended to involve his chest anteriorly and posteriorly, both shoulders and his face. The condition continued for about three weeks and then became somewhat less severe. At no time since the onset had the patient been completely free of the itching or the eruption. The itching had always been most severe at night, and was accompanied by sensations of biting and burning so marked in severity as to prevent sleeping. He stated definitely that sensations of itching, pain, biting and burning always preceded and accompanied the appearance of the lesions. The condition had been particularly severe for the past two months. For the past three or four weeks he had been troubled by a feeling of tightness in his throat and sores in his mouth. The itching and eruption appeared for the first time on both arms two or three days prior to entrance. Treatment prior to admission had been the taking of pills by mouth three times a day and local applications prescribed by his physician, with no relief.

The patient stated that he had always enjoyed excellent health prior to about seven years ago when he was told he had diabetes, was placed on a diet, and given insulin for about six weeks. Since then he had had no further trouble. In 1925, he was operated on for hydrocele. For the past two or three years he had had a mild cough, which was worse at night, and productive of a small amount of blackish mucus. He had never noticed any blood in his sputum. For the past two or three months he had noticed some weakness in his legs. He stated that he had lost about 70 pounds (31.8 Kg.) in weight in ten years. He had always been a hard worker, inclined to be nervous and "high strung." He had always worried over financial matters, and been troubled with insomnia. He definitely stated that he had never taken medicine for this, and that he never took a cathartic, although he had been troubled with constipation as long as he could remember.

The marital and family histories were essentially unimportant.

The physical examination gave essentially negative results, with the exception of moderate injection of the tonsils and pharynx and the presence of a small erosion on the left side of the hard palate posteriorly. The blood pressure was 128 systolic and 80 diastolic.

The blood count showed: red blood cells, 4,400,000; white blood cells, 8,900 and hemoglobin, 80 per cent (Sahli).

The differential count showed polymorphonuclears, 62 per cent; large lymphocytes, 26 per cent; small lymphocytes, 10 per cent, and basophils, 2 per cent.

The specific gravity of the urine was 0.024, and the specimen was negative for albumin and reducing substances; microscopic examination showed an occasional white cell and a few epithelial cells.

A roentgenogram of the chest revealed no pathologic process in the lungs or in the mediastinum.

DISCUSSION

DR. LESTER WIEDER: The extreme symptoms the patient has had, the almost urticarial type of the papules and vesicles and the bullous lesions make tenable, I think, a diagnosis of toxic erythema closely approaching a dermatitis herpetiformis. There is no Nikolsky sign to help out a diagnosis of pemphigus and no history of the taking of drugs. I should be inclined to make a diagnosis of erythema toxicum.

DR. PAUL A. O'LEARY: The diagnosis of dermatitis herpetiformis seems warranted.

DR. O. H. FOERSTER: I believe with Dr. Wieder that it is a borderline case between toxic dermatitis and dermatitis herpetiformis.

DR. DAVID LIEBERTHAL: There are in this case grouped lesions, papules, wheals, vesicles and bullae accompanied by severe itching. The grouping, as well as the multiformity of lesions and the itching, favors the diagnosis of dermatitis herpetiformis.

DR. KARL ZWICK: I am willing to agree, provisionally, with the diagnosis offered, if Dr. Becker consents to emphasize the question mark. I hesitate to commit myself definitely, because the case is not absolutely characteristic of Duhring's disease.

EPIDERMOLYSIS BULLOSA (ACQUIRED). Presented by DR. F. E. SENEAR and DR. M. R. CARO.

A white woman, aged 38, had no disorder of the skin prior to the onset of the present condition two years ago. There was no family history of diseases of the skin.

At first a bulla appeared on the front of the neck. Since then other bullae and milium bodies had appeared on both the lower and upper extremities and on the head and neck, often following trauma, and changes in the nails had taken place. The patient stated that several times she developed a generalized, red, blotchy rash accompanied by slight itching. These eruptions were temporary and were not followed by the appearance of bullae.

The patient presented diffuse patches of pinhead-sized, white, milium bodies set on a dusky, erythematous base, involving the palms and dorsa of the hands, the wrists, neck, scalp and ears. She also had pea-sized to larger bullae on the palms, elbows and ankles, some of them being hemorrhagic. All the finger-nails and most of the toe-nails were dystrophic, and the nails of the right index finger and midfinger were gone.

A biopsy revealed that the epidermis was separated from the corium nearly throughout. The upper part of the corium was edematous and contained a diffuse round cell infiltration.

Weigert stain showed the total absence of elastic fibers from the upper part of the corium, and fragmentation and curling of the elastic fibers deeper down.

DISCUSSION

DR. J. H. MITCHELL: In view of the doubt that was cast by Dr. Michelson on the diagnosis made on the four children shown here last month, I should like to have Dr. Nomland tell us about the subsequent observations in that group. On a recent visit to Ann Arbor, through the courtesy of Dr. Wile, I saw a small child who presented exactly the same picture. There were no nits in the scalp and no crusting. The fact that the condition in these four children has continued for some time without much change is significant.

DR. RUBEN NOMLAND: We tried to look after those children as well as possible. We had the visiting nurse go in and see that the lesions were properly dressed with mercurial ointment and were given a thorough soaking with a corrosive mercuric chloride. In addition, we asked the nurse to see that the scalps were kept clean. This was done for some weeks and we recently saw the children again. They still presented bullous lesions, with one or two linear bullous lesions on the thigh.

DR. F. E. SENEAR: The only thing I have to say about the case today was brought out in the history. The only other case of acquired epidermolysis bullosa that I have had an opportunity to see was in one of Dr. Pusey's patients some years ago. That patient had a typical eruption of erythema multiforme of maculopapular type. The literature describes this in connection with epidermolysis bullosa, and in this case the patient has had the areas of maculopapular eruption. I think the case corresponds very well to the ones described.

ERYTHEMA MULTIFORME? Presented by DR. MAX S. WIEN.

V. B., a woman, aged 34, was admitted to the medical service of the Cook County Hospital on Oct. 7, 1930, complaining of soreness in the mouth of four days' duration, and marked sweating since the onset. She gave a history of chronic constipation for which she had been taking feen-a-mint gum at regular, frequent intervals for the past year.

Examination on admittance revealed an injected throat and a red, discolored tongue containing several discrete, superficial ulcers the size of a split pea and covered with a bluish-gray membrane. Both lower extremities presented ecchymotic nodules and patches varying in size from that of a bean to that of a hen's egg, tender to pressure, some having a livid halo about them and others revealing a tendency to central bullous softening. On the thighs, the nodules coalesced to form palm-sized plaques. Scattered lesions were also present on the trunk and upper extremities. When presented, the patient had a diffuse, brownish, mottled and reticular pigmentation on the extremities and the trunk at the sites of the previous lesions. In addition, there was present a dime-sized area of necrosis of irregular shape on the left ala and adjacent bulbous portion of the nose which was painful and which first appeared four weeks ago as a small area, resembling an infarct. The first loss of tissue was noted one week later.

The examination of the heart and lungs was negative. The roentgenogram of the chest was negative. The leukocyte count was 35,600 on admittance and 11,100 on Nov. 13, with 91 per cent polymorphonuclears. The Wassermann reaction and cultures of the blood were negative. Since admission, the patient had had an irregular temperature, which has risen as high as 102 F.

DISCUSSION

DR. LESTER WIEDER: The patient has had an almost daily rise in temperature to 101 F. and 102 F., and obviously is quite ill. While I do not know the underlying etiologic factor, I might consider the cutaneous process a toxic erythema, possibly intensified by taking phenolphthalein over a long period. There is also a gangrenous lesion of the nose, and the whole condition may be due to an underlying infectious process with septicemia.

DR. KARL G. ZWICK: Has any one observed lesions like those seen in the patient following the administration of phenolphthalein?

DR. PAUL O'LEARY: I think that this is the most interesting case presented today, particularly because of the opportunity it gives for speculating as to the etiology. It is not unlike the cutaneous pictures I have seen in association with malignant endocarditis, in which the hemolytic streptococcus has been demonstrated. It is difficult to explain the ulceration of the nose and the apparent atrophy of the muscles of the backs of the hands on the same basis. However, I can conceive of a streptococcal infection producing an embolic process resulting in a gangrene of this type. The patient is acutely ill and probably seriously so, and I think that there is no doubt of a systemic infection of some sort, and even though the first blood culture was reported negative, further search along that line is indicated.

DR. CLARK W. FINNERUD: I saw this patient before the lesion on the nose developed and presented her before my clinic as having a probable multiform erythema. The history of her previous attack is of some importance. I still believe this to be the correct diagnosis.

DR. MAX S. WIEN: I saw this patient first on October 8, when she gave a history of having had a sore mouth for four days, with profuse sweating. The lesions then varied in size from that of a navy bean to that of a fifty-cent piece, were intensely blue and gave an impression of ecchymosis. Some of them had coalesced, forming plaques. They were so much like the areas seen following the ingestion of phenolphthalein that she was questioned, and according to her story, she had taken pills (containing phenolphthalein) for the past year to relieve constipation. A diagnosis of phenolphthalein dermatitis was made, and I did not see her again until today. She has a gangrenous process in the nose which, the intern states, looked like an infarct when first seen. She also presents an ill-defined type of brownish pigmentation at the sites of the original eruption. The question arose as to whether the gangrenous process could result from the eruption caused by the ingestion of phenolphthalein. Medical examination revealed no symptoms in the heart or lungs. The roentgenogram of the chest was negative. Culture of the blood has yielded no growth, and the leukocyte count has

decreased. While she presents the picture of erythema multiforme, whether it is secondary to a mural endocarditis which has not yet manifested itself clinically will require further examination. The case will be followed and the results of further observation will be reported.

DR. RUBEN NOMLAND: I have had considerable experience with severe types of arthritis, and I think this woman has the same type of hand that is seen in severe cases of arthritis. In addition, I think there is some infiltration of the palms, suggesting the type of nodes not infrequently seen in arthritis.

NOTE: Upon further observation, subsequent cultures and serologic examinations of the blood were found to be negative. Careful examination of the heart revealed no murmurs or abnormalities. The pigmentation diminished, and the nasal destruction ceased after involving the entire bulbous portion of the nose.

There was marked improvement in the patient's general condition coincidental with the administration of potassium iodide by mouth and the subsequent oral administration of mercury.

INFECTION OF SKIN AND MUCOUS MEMBRANE BY MONILIA. Presented by DR. J. H. MITCHELL.

A woman, aged 47, gave a history of the first lesion appearing as paronychia on the right middle finger nine years previously. This was followed by the lesion ("erosio interdigitalis") in the third interspace one year later. A vaginal discharge and lesions about the vulva and anal region developed about one year ago. The patient was an undersized, somewhat obese, orthodox Jewess who was born in Russia. At the present time she presented fissures in the labial commissures, paronychia of the right thumb and middle finger and of the left index finger. There was also a typical lesion of erosio interdigitalis in the right third interspace and fissured intertrigo in the inframammary, inguinal and anal folds. The mucous membrane of the vulva presented the mottling so characteristic of infection due to *Monilia*. The skin of the pedal interspaces was macerated to the margins of the apposed surfaces but not beyond, and unless the toes were separated the process was scarcely noticeable.

Photographs of the patient, and detailed photographs of the lesions mentioned were presented together with photomicrographs of the organism in the tissue, cultures stained with methylene blue (methylthionine chloride, U. S. P.), and a photograph of the cultures from the mouth, hand, breast, vaginal, vulvar, anal and feet lesions. Repeated cultures had been obtained from the stools. The organism was found to be the same in all areas.

Dr. Mitchell demonstrated the photographs of another patient, a man, aged 56, who was referred to him by Dr. Joseph L. Miller for pruritus ani. The characteristic intertrigo with fissuring was present, and, in addition, the patient was found to have fissures in the labial commissures and the characteristic maceration between the toes. Repeated cultures of the stools had been positive for *Monilia*. Photomicrographs of the grouped spores and mycelia in the tissue and stained specimens of the cultures were presented.

The characteristic mottling of the mucous membrane that occurs in vulvovaginitis was well demonstrated in the photographs of a woman, aged 36. There were also well shown the typical intertrigo and fissuring about the anus and coccyx. Photomicrographs of the organisms in the tissue and of the stained cultures were appended. The same *Monilia* was recovered from the vaginal secretion, the vulvar tissue and the coccyx.

Another case of interest was that of a man, aged 35. He had suffered for some months with a troublesome stomatitis. The white areas on the buccal mucosa were well shown in a photograph, and the mass of mycelia and grouped spores in the thrushlike lesions were seen in photomicrographs. The same organism had been repeatedly cultivated from the buccal mucosa and from the stools.

Dr. Mitchell called attention to the characteristic manifestation of infection of the toes by *Monilia*. With the toes at rest in a man, aged 60, the lesions

were scarcely visible. The process was essentially intertriginous, and the scattered vesicles of the usual ringworm infection were absent. When the toes were spread apart, however, the markedly uniform and severe maceration of all the interspaces became evident.

The intertriginous process was further shown by the feet of another man, aged 60. His shoes, being much too narrow, had produced a fold around the ball of the great toe, in which the infection had spread and could be seen to stop sharply at the end of the fold. When this foot was at rest the folds concealed all of the activity.

Two instances of infection of the inframammary folds by *Monilia* were exhibited. One case was that of a German woman, aged 38, who was in the United States for a short stay. The intertrigo was more severe on the left than on the right, but the characteristic fissures were to be seen in each fold. In the other case the infection was limited to the apposed surfaces of the inframammary folds of an obese, diabetic French nurse-maid. This patient was the only one of the series having sugar in the urine. Both patients made good recoveries when treated with potassium permanganate baths.

Attention was called to a photograph of another case of vulvovaginitis occurring in a young married woman. The mottling of the vulvar mucosa was well shown, and a photograph of the pure cultures of *Monilia* obtained from the vaginal discharge and from the vulvar tissue was exhibited.

Photographs of two cases of pruritus ani in men, together with the photomicrographs of the organism in the tissue, were presented; the original cultures and the microscopic appearance of the stained spores in the cultures were offered for inspection.

Failure of the "Gram staining" method of treatment recommended by Cornbleet for erosio interdigitalis was demonstrated in one case. The blue staining produced by the gentian violet could be seen in the photograph of the lesion. The photographs of the pure cultures obtained after four and eight weeks of such treatment in this case were shown.

DISCUSSION

DR. DAVID LIEBERTHAL: I wish to say that I am thankful to Dr. Mitchell for his excellent demonstration, which is very valuable in the interpretation of the various mycotic diseases.

DR. S. W. BECKER: This was an excellent demonstration. Dr. Ritchie and I have also found that the mosaic fungus disintegrates as Dr. Mitchell showed, but in some cases we have had it persist for as long as thirty days in its original shape.

NEW YORK DERMATOLOGICAL SOCIETY

J. FRANK FRASER, M.D., *Secretary*

Regular Meeting, Nov. 25, 1930

JEROME KINGSBURY, M.D., *President, in the Chair*

A CASE FOR DIAGNOSIS. PERIORAL ECZEMA? Presented by DR. H. J. SCHWARTZ.

L. R., 12 years of age, born in the United States, was first seen in the Cornell Clinic on Nov. 12, 1930, at which time she presented a dull red, dry, scaling eruption around the mouth. This condition had started three months previously when injections of arthritis vaccine were being given. Many fever sores had appeared on the lips during the past two months. There was no history of external irritants. Aside from the arthritis the general health was excellent. Contact tests were made with the three kinds of tooth pastes used by the patient, and all were negative. The examination of the blood gave normal results.

DISCUSSION

DR. G. M. MACKEE: I thought of a peri-orbicular eczema and also of the possibility of an eruption due to phenolphthalein; I questioned the child's mother, who is certain that the child has never had the drug. Because of the sharp margin, the eruption should be investigated for fungi. With the idea that the condition may be somewhat analogous to perlèche, the mouth ought to be investigated for bacteria and fungi. The eruption does not suggest seborrhea dermatitis or chapping.

DR. H. H. WHITEHOUSE: As Dr. MacKee says, seborrheic dermatitis may be ruled out. As for the licking of the lips being the cause of the dermatitis, the mother told me that the child did not do that until after this condition appeared. There is no atrophy or telangiectasia, which would suggest a possible early case of lupus erythematosus. I cannot diagnose the condition, but would agree with Dr. MacKee's suggestion that the case be investigated for some fungous infection.

DR. J. E. LANE: It does not seem to me that a diagnosis of perlèche can be applied to the condition; perlèche is limited to maceration and fissures at the angles of the mouth. To my mind, perioral eczema is ruled out by the facts that the lips are not affected, and that there is a distinct area of normal skin between the vermilion border of the upper lip and the lesion, which is located on the center of the lip. An eruption due to phenolphthalein is also ruled out by the fact of slight excoriation and fissuring of the lesion. In addition to the possibilities mentioned, it has occurred to me that the lesion may have been caused and kept up for a long time by mechanical irritation, possibly rubbing.

DR. E. A. MALONEY: I think that this is a case of periorbicular eczema. The lesion is so sharply demarcated that it is probably induced by the wetting of the upper lip with the lower.

DR. C. M. WILLIAMS: The redness, the sharp demarcation and the slight scaling indicate infection. Licking the lip, often unconsciously, is probably an important etiologic factor. The infecting organism is probably one of the *Monilia* group, and should be sought for by culture.

CHEILITIS GLANDULARIS APOSTEMATOSA. Presented by DR. FRED WISE.

Miss K. G., aged 55, from the New York Post-Graduate Skin Clinic, had had an exudative and crust-forming eruption of both lips for three months. There was a glairy secretion, most marked on the lower lip, which caused the lips to stick together during the patient's hours of sleep. On examination, both lips presented a moist, adherent, whitish membrane covered with a glairy secretion. When allowed to take its natural course without local applications, a heavy yellow crust would form on both lips. The lesions had not responded favorably to various local applications. Six successive doses of roentgen rays of one-fourth skin unit each at weekly intervals did not result in improvement.

Examination for Vincent's organisms gave negative results. Chemical examination of the blood showed no abnormalities.

DISCUSSION

DR. BINFORD THRONE: I think that Dr. Wise's diagnosis is correct.

DR. J. J. ELLER: I am inclined to agree with the diagnosis of the presenter.

DR. WALTER J. HIGHMAN: To use the word cheilitis is to say in Greek what might as well be said in English — inflammation of the lips. The use of the word cheilitis, without giving an inkling of the type, is pure pedantry.

DR. CHARLES M. WILLIAMS: The condition is cheilitis, but to make that diagnosis is only to give a Greek name to an obvious fact. The etiology is the essential thing, and the appearance suggests an infection with *Monilia*, a type of infection about which very little is known as yet. For treatment, I should suggest Lassar's paste, which should be applied constantly, with avoidance of all irritation.

A Case for Diagnosis (Tuberculosis?). Presented by Dr. E. A. Maloney for Dr. Howard Fox.

A. B., a girl 6 years of age, born of Italian parents, had been in the United States for fourteen months. She had suffered from the eruption for the past year. A further history was unobtainable. She presented a bilateral swelling of the lower four fifths of the nose and of the upper lip (more marked on the left side) and to a slight extent of the adjacent part of the left cheek. The affected area was slightly reddish, painless, not tender and moderately firm. On the mucous surface of the left side of the upper lip, there was a rough, uneven, granulomatous infiltration, which did not bleed on trauma and which was painless. In the left nasolabial fold there were a few small adherent crusts, which suggested impetigo or possible lupus vulgaris. The patient was well nourished and in good general health. The tonsils were enlarged. The Wassermann test was negative.

Subsequent to presentation a histologic examination was made; it showed granulation tissue with large numbers of plasma cells and no tubercles. It was thought that syphilis was a possibility.

Dr. H. H. Whitehouse: In all probability the condition is tuberculous.

Dr. Binford Throne: I agree with Dr. Whitehouse.

Dr. W. J. Highman: I should suggest that scrapings be examined.

Dr. G. M. MacKee: The involved area shows a number of transparent, thick-walled, vesicle-like lesions under which there is a boggy mass. I suggest the possibility of nevus lymphangiectodes with ulceration.

Radiodermatitis. Presented by Dr. P. E. Bechet.

M. L., a woman, aged 21, had received forty roentgen treatments at the Tricho Institute for relief from a mild hypertrichosis. On inspection, the chest, arms and face exhibited a mass of telangiectasia, with many atrophic patches. The telangiectasia was worse on the arms, and, curiously enough, much of the hair was still present. The condition was disfiguring.

DISCUSSION

Dr. John E. Lane: About two months ago I had a patient, a girl of 15 to 20 years of age, with almost the same picture that this girl shows. The damage was also due to roentgen therapy administered at the Tricho Institute.

A Case for Diagnosis (Sarcoid?). Presented by Dr. Frank C. Combes.

H. F., a woman, aged 24, gave a history of the appearance of a rash about sixteen years previously, following an attack of scarlatina. The condition had not changed perceptibly since that time. On examination she presented on each side of the base of the neck many oval, discrete, yellowish-pink maculopapules, about 3 by 4 mm. in dimension. Beneath each breast, extending over the upper part of the abdomen, there were similar lesions, and in addition there were three hard nodules about the size and shape of a pea. These nodules were a little deeper red and intracutaneous. None of the lesions was painful; when rubbed they became erythematous and urticarial. In unaffected regions the skin showed definite dermographism. There was no glandular enlargement.

DISCUSSION

Dr. W. J. Highman: Nothing can be said until the slides are seen. The tumor might be any of a number of types.

Dr. G. M. MacKee: The case is too confusing for a clinical diagnosis to be possible. I shall have to depend on a microscopic examination. The possible diagnosis appears to be sarcoid or fibroxanthoma.

DR. J. E. LANE: I am satisfied that the eruption is not urticaria pigmentosa.

DR. BINFORD THRONE: I agree with Dr. Lane that the condition is not urticaria.

DR. F. C. COMBES: I apologize for not having a biopsy report, but it has not been completed. I appreciate the fact that a diagnosis cannot be made from the clinical picture. I considered syringoma, but there were many elements in that condition that did not agree with this clinical picture. The condition is probably nevus, but I am more or less in a quandary as to its classification.

RECURRENT MACULAR SYPHILID. Presented by DR. FRANK C. COMBES.

F. S., a woman, aged 39, gave a history of infection with syphilis fifteen years prior to presentation, followed by four months of treatment. About six weeks prior to presentation a generalized multiform erythema developed. On examination at the University and Bellevue Skin Clinic, she presented an erythematous eruption which extended over the entire body, with the exception of her face, and which consisted of circular patches and narrow rings, with clear skin in the center. These lesions coalesced in many instances to form gyrate figures; they were sparse on the extremities. The lesions were bright pink; they were not scaly or infiltrated, and they disappeared on pressure. On the inner aspect of each labium majus there was a superficial narrow ring of denuded skin about 3 cm. in diameter with a center of normal integument. There was no adenopathy. The Wassermann reaction of the blood was 4 plus, and the patient showed clinical evidence of cerebrospinal syphilis.

DISCUSSION

DR. W. J. HIGHMAN: I am sure that the patient has syphilis, but I know of no reason to assume that the eruption is syphilitic. It looks like an eruption due to drugs. I believe that if this condition were syphilis it would have to be a disseminated form, but without glandular involvement I do not know what disseminated form it might be.

DR. FRED WISE: I agree with the diagnosis of recurring macular syphilid.

DR. G. M. MACKEE: The eruption is unusually generalized for late syphilid; the color is a rather bright red. There is no grouping or configuration. It may be a case of recurrent syphilitic macular eruption, but, as Dr. Highman suggested, the possibility of an eruption due to drugs or to a toxin from the gastro-intestinal tract should be considered.

DR. R. H. RULISON: It seems to me that the color of the eruption is not usual in syphilis. I should be inclined to consider the condition a toxic eruption rather than syphilis.

DR. H. H. WHITEHOUSE: The woman has syphilis, but I have never seen this type of syphilid, so I am not able to judge whether it is a syphilid or toxemia.

DR. E. F. TRAUB: The lesions of this patient were largely limited to the torso, with none on the extremities below the knee and elbow. There is, however, very little if any scaling; nevertheless, pityriasis rosea should also be ruled out.

DR. BINFORD THRONE: I agree with Dr. Highman.

DR. J. J. ELLER: I also agree with Dr. Highman and Dr. MacKee.

DR. F. C. COMBES: As some one has mentioned, this condition was first described by Fournier and called by him tertiary circinate erythema. In this country, cases have been described by Drs. George H. Fox and Howard Fox. Dr. Howard Fox's paper was written in 1917; at that time there were about fifty cases recorded in the literature. Some cases have occurred from fifteen to forty years after the original infection. Unna described the histology and gave the condition the name of neurosyphilid, which is a poor name, since he considered it analogous with neuroleprid. Under the microscope the section showed hyper-

plasia and sclerosis of the capillaries, with practically no infiltration. As suggested, the differentiation from secondary roseola is of importance. In this case the usual oval macules are not present; the macules are much larger. The gyrate figures do not occur in secondary roseola. The face is free from the eruption, which is a location of predilection in secondary syphilis. The case agrees with those previously described in that the eruption is confined mostly to the trunk, being sparse on the extremities. The woman has been examined carefully for the ingestion of drugs that might cause the condition, but without result. As regards the color of the eruption, some writers have described it as bright red, later changing to yellowish. The eruption is resistant to treatment and will last indefinitely. In some cases it has been seen to disappear spontaneously after a long period. There is no general adenopathy in this case.

The treatment that was given fifteen years previous to presentation consisted of injections into the arm and hip, given over a period of four months. I cannot tell whether this was sufficient to cure the patient, but from my experience I doubt it. The patient now shows evidence of cerebrospinal syphilis. I propose to make an examination of the spinal fluid and to remove a section of skin for histologic examination.

DR. C. M. WILLIAMS: Does this rash disappear under pressure?

DR. F. C. COMBES: Yes.

DR. C. M. WILLIAMS: The condition is probably livido reticularis of the type described by Ehrmann in connection with disease of the deeper veins of the skin in late syphilis.

PSORIASIS PALMARIS. Presented by DR. FRED WISE.

M. P., an Italian, aged 34, from the skin clinic of the New York Post-Graduate Hospital showed lesions of nine months' duration. Both palms presented irregularly shaped hyperkeratotic areas with deep fissures. Some of the lesions on the palmar surface extended to the lateral surfaces of the fingers. The skin between the lesions was normal in appearance. On the right hand there were lesions on the dorsa of the first and second fingers. There was some stippling of the nails of the middle and ring fingers. On each heel there was a callous formation with a hyperkeratotic edge. There were no lesions elsewhere on the body.

The patient said that he had not taken arsenic; he stated that no one in his family had had any disease of the skin. He had been working for twelve years with metals, and had been using soldering fluid during that period, but the lesions on the hands were of only nine months' duration.

DISCUSSION

DR. J. F. FRASER: I agree with the diagnosis of psoriasis. Dr. John Harris presented a case in which there were similar lesions at a recent meeting of this Section of the Academy.

DR. W. J. HIGHMAN: There is no need of recapitulating before this body all the conditions that may present such a condition; psoriasis is one, but there is no reason to exclude some metal. The man is a metal worker, and there are plausible reasons for assuming that that is a more likely cause. Moreover, the pitting of the nails, considered as a diagnostic sign of psoriasis, is overdone. I do not believe that there is any reason for making a clinical diagnosis of psoriasis in this case without adequate proof.

DR. G. M. MACKEE: I agree with the diagnosis of psoriasis, because the majority of such cases eventually turn out to be psoriasis. Otherwise, I agree with Dr. Highman.

DR. R. H. RULISON: I think that Dr. Highman's suggestion as to the possibility of arsenical keratosis is good. Three years ago a carpenter came to Cornell Clinic because of a thickening of the palms so great that he had difficulty in handling tools. The condition had been present for a year. He had an

inveterate psoriasis of other parts of the body of fifteen years' duration. At various times he had taken arsenic. As an experiment, he was given no treatment except sodium thiosulphate by mouth and intravenously. The condition of the hands improved markedly, whereas the psoriasis on the rest of the body was not benefited by this treatment. Arsenic could not be found in the urine at any stage of the treatment.

DR. H. H. WHITEHOUSE: I do not see any evidence of psoriasis on the palms, and I agree with Dr. Highman about the pitting of the nails. I have them on my own nails from mild disturbances of digestion. The man is working in minerals and acids and uses both hands, and I understand that the hands are exposed in equal degree. I have seen only one case of psoriasis that was limited to the palms; that case occurred many years ago in an inmate of the hospital. It showed no resemblance to this case. I consider this case as a fissuring dermatitis, due to, or at any rate aggravated by, the patient's occupation.

DR. BINFORD THRONE: My diagnosis is arsenical keratosis. I see no resemblance to psoriasis.

DR. J. J. ELLER: The lesions could be caused by irritation from some of the metals used in the patient's occupation. I do not see why they could not cause hyperkeratosis of this type at times. I saw a similar case not long ago in a patient who worked with gold dust.

SARCOID OF BOECK (?). Presented by DR. BINFORD THRONE.

P. S., an Italian, aged 43, had suffered from the condition of the skin since July, 1927. He stated that he had had empyema and abscess of the lung eighteen years prior to presentation. The lesion began on the chin and was diagnosed as sycosis. When first seen, the involved area was covered with crusts, and there was marked involvement of the hair follicles. As presented, the patient showed a granulomatous condition on almost the whole chin, a similar condition at the orifices of the nostrils, marginal blepharitis and folliculitis of the back of the neck. Repeated Wassermann tests of the blood were negative; the Mantoux tuberculin test was strongly positive.

The treatment had consisted of the use of various ointments, intradermal injections of a mixed vaccine in the affected area and injections of tricophytin. The only effect had been to lessen the purulent element of the condition; otherwise no appreciable benefit had resulted.

A biopsy did not show sarcoid.

DISCUSSION

DR. FRED WISE: I regard the lesion as sycosis vulgaris complicated by dermatitis vegetans.

DR. G. M. MACKEE: The patient exhibits an eruption that appears to be identical with the photograph in the "Ikonographia" that Dr. Throne showed us. However, I prefer to make a diagnosis of a common rather than a rare disease until one can exclude the former. My diagnosis is pyoderma — a vegetating dermatitis, secondary to a pustular folliculitis.

DR. H. H. WHITEHOUSE: I think that the condition is a chronic infiltrating sycosis.

DR. JOHN E. LANE: I agree with Dr. MacKee. The patient also had had conjunctivitis and infection of the eyelids.

DR. BINFORD THRONE: I can add only that the patient was treated for a long time for chronic staphylococcic infection, without result. It was on account of the similarity of his condition to the case described by Nobl in the "Ikonographia" that I thought of sarcoid, and I was much disappointed when the histologic report ruled out sarcoid.

SCLEREMA NEONATORUM. Presented by DR. FRED WISE.

S. D., a girl, from the skin clinic of the New York Post-Graduate Hospital, aged 6 weeks, had had the condition presented since birth. She presented areas of yellowish-red erythema on various parts of the body, associated with irregularly distributed nodules situated under the skin, which were of very firm consistence. The indurated nodules were most pronounced on the thighs, the abdomen and the buttocks and at the axillary borders. In addition to the indurated subcutaneous lesions, the skin presented widespread guttate, scaly and discoid seborrheic eczema. The child's gums were swollen. The general health seemed to be fairly normal, and the child was well nourished.

Book Reviews

SCHRIFTEN AUS DEM GESAMTGEBIET DER GEWERBEHYGIENE: DAS GEWERBEEKZEM. Neue Folge, Heft 30. By Rudolf L. Mayer. Price, 7.50 marks. Pp. 89. Berlin: Julius Springer, 1930.

In this brochure of eighty-nine pages this subject of ever-increasing importance is treated in a concise and masterly manner.

In the first part the definition of eczema is discussed, bringing out the many transitional and borderline forms, but showing that there are typical, clinical and histologic criteria. The author agrees with the point of view of Jadassohn and Bloch concerning the uselessness of attempting to continue to separate dermatitis venenata and eczema as two different disease entities.

The rôle of sensitization in the pathogenesis of these eruptions is discussed, and the different parts played by the nature and concentration of the substances, the manner of the contact and the constitution and state of the patient are briefly outlined. The relationship of asthma, urticaria, lichen simplex, prurigo and eczema, as well as the analogies to anaphylaxis, is touched on.

Therapy and prophylaxis are discussed in the practical part of the book. It is demonstrated that the contact tests of Jadassohn, Bloch and their pupils, by enabling an etiologic diagnosis, are most important aids in this field. Scratch and intradermal testing has proved of little or no value here.

A chapter is devoted to the manner and technic of testing and the evaluation of the results. Another chapter discusses the different occupations and the eczematogenous substances which are therein involved. Hints and suggestions are given for the regulation of factories and industries in which occupational eruptions occur, and the carrying out of practical prophylaxis. The German laws governing this type of occupational disease are cited. There is appended an extremely useful list setting forth a large number of substances commonly causing eczema, together with the concentrations of these substances which cause no reaction on the skin of normal, nonsensitive persons.

CORRECTION

In the third footnote in the article by Dr. Robert E. Barney, entitled, "Dissecting Cellulitis of the Scalp (Perifolliculitis Capitis Abscedens et Suffodiens) in the March issue (ARCH. DERMAT. & SYPH. **23**:503, 1931), it is stated that the paper was read at the Fifty-Third Annual Meeting of the American Dermatological Association, Cleveland, June 19, 1930. This statement is in error; the paper was presented only before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930, although the patient was presented at the clinical meeting of the American Dermatological Association in Cleveland.

Directory of Dermatologic Societies *

NATIONAL DERMATOLOGIC SOCIETIES

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

Elmore B. Tauber, Chairman, 19 W. 7th St., Cincinnati.
Francis E. Senear, Secretary, 55 E Washington St., Chicago.
Place: Philadelphia. Time: June 8-12, 1931.

American Dermatological Association

C. Morton Smith, President, 437 Marlboro St., Boston.
W. H. Guy, Secretary, 500 Penn Ave., Pittsburgh.
Place: Toronto. Time: June 15-17, 1931.

British Association of Dermatology and Syphilology (Canadian Branch)

Emerson J. Trow, President, Medical Arts Bldg., Toronto.
Hamnett A. Dixon, Secretary, Medical Arts Bldg., Toronto.

SECTIONAL DERMATOLOGIC SOCIETIES

Baltimore and Washington Dermatological Society

Isaac R. Pels, President, 1010 St. Paul St., Baltimore.
H. Hanford Hopkins, Secretary, Johns Hopkins Hospital, Baltimore.

Iowa and Western Illinois Dermatological Association

J. C. Kessler, President, University Hospital, Iowa City.
J. W. Bailey, Secretary, 10th St. and Grand Ave., Des Moines, Iowa.

New England Dermatological Society

Walter T. Garfield, President, 19 Bay State Rd., Boston.
Rudolph Jacoby, Secretary, 270 Commonwealth Ave., Boston.

Southern Medical Association, Section on Dermatology

Chairman: Clifton Brooks Willmott, 608 S. 4th Ave., Louisville, Ky.
Emmet R. Hall, Secretary, 1001 Exchange Bldg., Memphis, Tenn.

STATE DERMATOLOGIC SOCIETIES

Louisiana Dermatological Society

Thomas A. Maxwell, President, 1119 Union Indemnity Bldg., New Orleans.
R. A. Oriol, Secretary-Treasurer, Maison Blanche Bldg., New Orleans.
Place: New Orleans. Time: April 14-16, 1931.

Medical Society of the State of New York, Section on Dermatology and Syphilology

Earl D. Osborne, Chairman, 471 Delaware Ave., Buffalo.
Leo Spiegel, Secretary, 241 W. 100th St., New York.

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* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA
SECTION ON DERMATOLOGY

Sigmund S. Greenbaum, President, 1714 Pine St., Philadelphia.
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Cyril K. Valade, Chairman, 1604 Eaton Tower, Detroit.
George H. Belote, Secretary, University Hospital, Ann Arbor.

MINNESOTA DERMATOLOGICAL SOCIETY

C. A. Boreen, President, 920 Medical Arts Bldg., Minneapolis.
D. D. Turnacliff, Secretary, Yeates Bldg., Minneapolis.

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James Stevenson, President, 108 W. 6th St., Tulsa.
W. A. Showman, Secretary, 108 W. 6th St., Tulsa.

LOCAL DERMATOLOGIC SOCIETIES

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Charles A. Wilkins, Secretary, Medical Arts Bldg., Atlanta, Ga.

BRONX DERMATOLOGICAL SOCIETY

Henry Silver, Chairman, 290 West End Ave., New York.
Theodore Rosenthal, Secretary-Treasurer, 243 West End Ave., New York.

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Abraham Walzer, President, 217 Clinton St., Brooklyn.
A. M. Persky, Secretary, 1750 Ocean Pkwy., Brooklyn.

CHICAGO DERMATOLOGICAL SOCIETY

Henry E. Michelson, 80 S. 7th St., Minneapolis.
E. A. Oliver, Secretary, 55 E. Washington St., Chicago.

CINCINNATI DERMATOLOGICAL SOCIETY

H. Jerry Lavender, President, 716 Provident Bank Bldg., Cincinnati.
L. E. Valker, Secretary-Treasurer, 916 Provident Bank Bldg., Cincinnati.

CLEVELAND DERMATOLOGICAL SOCIETY

J. R. Driver, President, Hanna Bldg., Cleveland.
Robert E. Barney, Secretary, Osborn Bldg., Cleveland.

DETROIT DERMATOLOGICAL SOCIETY

Cyril K. Valade, President, 1604 Eaton Tower, Detroit.
William G. Saunders, Secretary-Treasurer, 9203 Grand River, Detroit.

LOS ANGELES DERMATOLOGICAL SOCIETY

Irving R. Bancroft, Chairman, 412 W. Sixth St., Los Angeles.
Chris R. Halloran, Secretary, 1052 W. 6th St., Los Angeles.

Manhattan Dermatological Society

Jerome Kingsbury, Chairman, 853 7th Ave., New York.
Mihran B. Parounagian, Secretary, 126 E. 39th St., New York.

Montreal Dermatological Society

Philip Burnett, President, 2 Simpson St., Montreal.
Lemuel P. Ereaux, Secretary-Treasurer, 1390 Sherbrooke St., West, Montreal.

New York Academy of Medicine, Section of Dermatology and Syphilis

Joseph J. Eller, Chairman, 100 W. 59th St., New York.
A. B. Cannon, Secretary, 371 Park Ave., New York.

New York Dermatological Society

Jerome Kingsbury, President, 853 7th Ave., New York.
John Frank Fraser, Secretary, 100 W. 59th St., New York.

Philadelphia Dermatological Society

Carroll S. Wright, President, 1402 Spruce St., Philadelphia.
Jacques P. Guequierre, Secretary, 1930 Chestnut St., Philadelphia.

Pittsbugh Dermatological Society

Louis Willard, Chairman, 500 Penn Ave., Pittsburgh.
James H. Fiscus, Secretary, 121 N. Main St., Greensburg, Pa.

St. Louis Dermatological Society

Richard S. Weiss, President, 3720 Washington Blvd., St. Louis.
M. F. Engman, Jr., Secretary-Treasurer, 3720 Washington Blvd., St. Louis.

San Francisco Dermatological Society

Howard Morrow, President, 384 Post St., San Francisco.
John M. Graves, Secretary, 909 Hyde St., San Francisco.

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DERMATOLOGY

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